MECHANICS · AUTOS · HOMEBUILDING

POPULAR SCIENCE MONTHLY

May 35¢

Motoring on Rails PAGE 153

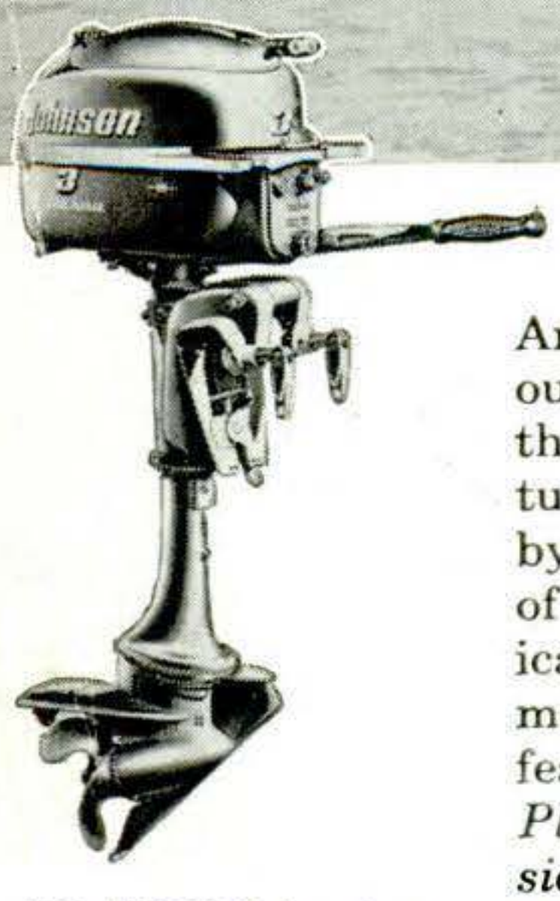
HOW TO

Choose a Convertible PAGE 130
Install Air Conditioners PAGE 171
Build a Geiger Counter PAGE 218

FIRST CHOICE!

America's resort operators buy 86% more Johnson Sea-Horses than any other make of outboard motor!

Sea-Horse 5½—the only outboard motor ever to win a citation from the National Noise Abatement Council.



SEA-HORSE 3. Another fishin' favorite! Full 3 hp. in a 32-lb. *twin!* Angle-matic Drive slides thru weeds, skis over under-water obstructions, keeps on driving in *inches* of water!

Ask the men who operate America's fishing resorts! They *know* outboards . . . Johnson Sea-Horses are their choice—BY 86%! On plans for future purchases, their choice is Johnson by more than 2 to 1*. Their favorite, of course, is the Sea-Horse 5½—America's leading fishing motor. This is the model that offers modern "big motor" features with small motor handling ease. *Plus Johnson's revolutionary "Suspension Drive" that brings QUIET to outboard boating.* Your Johnson Dealer will show you. Look for his name under "Outboard Motors" in your classified telephone directory.

**From survey by "Resort Management"*

SEA-HORSE 25 Electric Starting	25 hp	$525.00*
SEA-HORSE 25	25 hp	430.00*
SEA-HORSE 10	10 hp	310.00*
SEA-HORSE 5½	5½ hp	210.00*
SEA-HORSE 3	3 hp	145.00

**Includes Mile-Master Fuel System.*

Prices f.o.b. factory, subject to change. All ratings are OBC certified brake hp. at 4000 rpm.

FREE! New Sea-Horse Catalog. Complete details. Write for your copy.

JOHNSON MOTORS
500 Pershing Road, Waukegan, Illinois
A DIVISION OF OUTBOARD, MARINE & MANUFACTURING COMPANY
In Canada: Mfd. by Johnson Motors, Peterborough

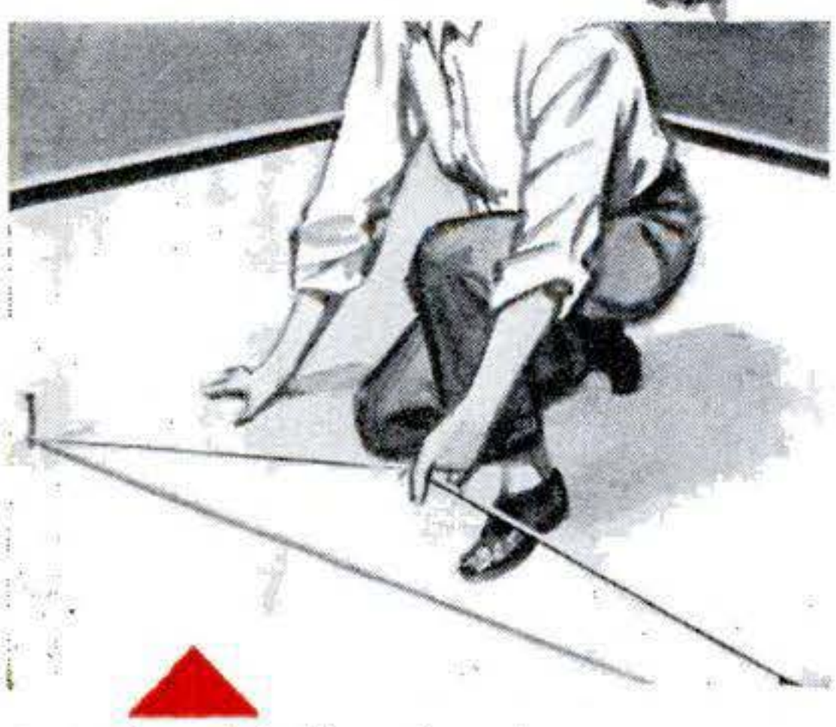
Johnson SEA-HORSES

Copyrighted material

Learn how homeowners everywhere save money by installing their own

MATICO TILE FLOORING

MATICO's New Improved Install-It-Yourself System Makes It Easy!



1—Mark straight lines through the center of the room in both directions, using a chalk and line.

Yes, you can enjoy colorful, durable MATICO Asphalt Tile Flooring in your home at amazing low cost by installing MATICO yourself. You can't buy a more economical type of luxury flooring than MATICO. It lasts for years . . . is easy to keep sparkling clean and comes in 32 striking decorator colors that can't wear off because colors and marbleization go clear through the tile.

It's a cinch to install, too, with MATICO's tested install-it-yourself instruction booklet . . . tile calculator . . . and special tool kit. Why, you can finish a room in just a few hours.

Why put up with a dingy, worn-out floor when it costs so little to install a MATICO tile floor yourself.

See your classified telephone directory for the name of your MATICO dealer.

2—With a notched trowel, spread adhesive evenly over floor and allow to "set."

3—Press tiles into position. You can walk on MATICO as soon as floor is in place.

QUALITY CONTROLLED MATICO PRODUCTS

REPLACEMENT OR REFUND OF MONEY — Guaranteed by Good Housekeeping — IF NOT AS ADVERTISED THEREIN

MASTIC TILE CORPORATION OF AMERICA

Joliet, Ill. • Long Beach, Calif. • Newburgh, N. Y.

Manufacturers of:

Aristoflex • Confetti • Parquetry • Maticork • Asphalt Tile • Cork Tile • Plastic Wall Tile

MASTIC TILE CORPORATION OF AMERICA
Dep't. S3-5, P. O. Box 986, Newburgh, N. Y.

Please send me MATICO's money-saving install-it-yourself instruction kit and complete color chart.

Name .....

Address .....

City ..... Zone ..... State .....

4C173

Copyrighted material

America's Leading New-Idea Magazine for 83 Years

Founded in 1872,
Vol. 166: No. 5

POPULAR SCIENCE REG. U. S. PAT. OFF. *Monthly*

Mechanics and Handicraft
REG. U.S. PAT. OFF.

MAY, 1955 ***Page***

Science

Why You May Fly in a Barrel..... 98
Diamonds Are Where You Make Them.....109
You'll Like Turboprop Flight.....119
Falcon Missile Can't Miss Its Prey.....127
Putting a Searchlight on the Deep.....150
Can Science Stop Dust Storms?.....163
New Photo Film Has Cat's Eyes.....203
Super Geiger Counter You Can Build.....218

Mechanics

How Truck Trains Speed Freight.....102
Helicopters Show Off New Tricks.....142
That Wonderful Machine on Your Wrist.....144
My Outboard Rides on the Bumper.....185
He's Building a Steam Car.....195
How to Get More from Electric Shavers.....200
Building Garden-Tractor Attachments.....210
Aluminum Barrow Boosts the Payload.....232

Autos

How They Produce Cars Nowadays.....104
A Racing Saucer for Indianapolis.....114
Siamese-Twin Hot Rod Guns for 260.....118
Studebaker Wins Gas-Saving Race.....124
How to Buy That New Convertible.....130
Let's Go Driving on the Railroad.....153
What New Car Just Passed You?.....160
Gus Rescues a Competitor.....168

Homebuilding

Now You Can Pump the Heat In or Out.....138
Installing a Room Air Conditioner.....171
What You Can Do with Bamboo.....177
Brush-On Sealers Keep Basements Dry.....181
Pointers on Building Garage Doors.....190
What's New in Patterns.....214
Woodpecker Knocks When Callers Come....242

(More features and departments are listed on page 4)

Editor
VOLTA TORREY

Managing Editor
HOWARD ALLAWAY

Art Editor
HOWARD C. JENSEN

Associate Editors
Alden P. Armagnac, Henry B. Comstock, Frank Dorr, Devon Francis, Sheldon M. Gallager, Wesley S. Griswold, Herbert O. Johansen, Martin Mann, Ruth Westphal.

Art
Harry Samuels (Director), Herbert Anthony, Gene Butera, Eric A. Karminski Jr., Henry W. Kazmirowski, Laylen H. Sweet.

Copy
Kendall W. Goodwyn (Director), Everett H. Ortner, Georgette Sparks, Harriet Trowbridge.

Photography
W. W. Morris (Director), Hubert Luckett, Orlando Guerra.

Assistant Managing Editors
Frank Rowsome Jr.
Robert P. Stevenson

Mechanics and Handicraft
Harry Walton

Midwestern Editor
Kenneth Wylie (Chicago)

Editorial Assistants
Stanley Beitler, Louise Levis, Teresa Robbins, Terry Simon, Joan Wolf.

Publisher
GODFREY HAMMOND

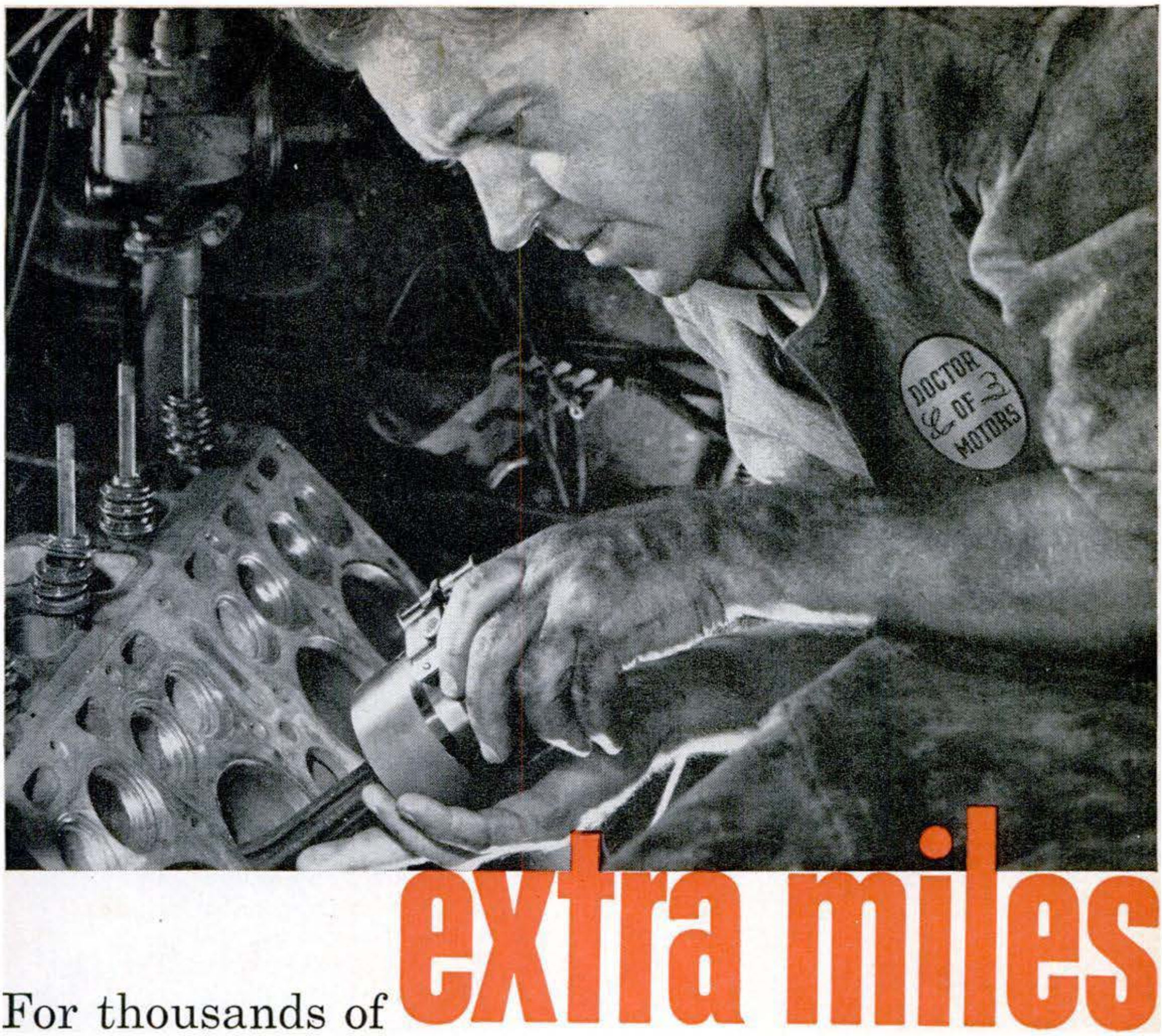
Advertising Director
STEPHEN P. GLENNON

Circulation Director
EUGENE WATSON

ADVERTISING OFFICES: NEW YORK—353 Fourth Ave.; CHICAGO—360 North Michigan Ave.; DETROIT—820 Book Bldg.; SAN FRANCISCO—114 Sansome St.; CLEVELAND—328 Citizens Bldg.; LOS ANGELES—1127 Wilshire Blvd.; PORTLAND, ORE.—520 S.W. Sixth Ave.

EDITORIAL OFFICES: 353 Fourth Avenue, New York 10, N. Y.

Published monthly at 353 Fourth Avenue, New York 10, N. Y., by Popular Science Publishing Co., Inc., Godfrey Hammond, President; Stephen P. Glennon, Vice-President and Secretary; Ralph H. Flynn, Vice-President and Treasurer; F. W. Briggs, Eugene Watson, Vice-Presidents. Entered as second-class matter Dec. 28, 1918, re-entered as second-class matter July 26, 1948, at the Post Office in New York, N. Y., under the act of March 3, 1879; additional entry as second-class matter at Dayton, Ohio. Entered as second-class matter at the Post Office Department, Canada. Printed in U.S.A. Copyright, 1955, by Popular Science Publishing Co., Inc. All rights reserved in the United States, Great Britain, and in all the countries participating in the International Copyright Convention and Pan-American Copyright Convention. Yearly subscriptions to United States, its possessions and Canada, $3.40 (2 years, $6.00; 3 years, $8.00); foreign countries $1 per year extra. Four weeks' notice is needed to change a subscriber's address. Please give both old and new addresses, including postal zone numbers.



For thousands of extra miles

of peak-performance, re-ring with Perfect Circle...

THE BRAND *MOST* PEOPLE *PREFER!*

Doctors of Motors *everywhere* know from experience that Perfect Circle's 2-in-1 Chrome piston rings assure sustained power and positive oil control.

In Perfect Circle's 2-in-1 Chrome piston ring set, *both* the TOP ring *and* the OIL ring are plated with thick, solid chrome giving complete wear protection throughout the entire area of ring travel. Life of cylinders, pistons and rings is *more than doubled!*

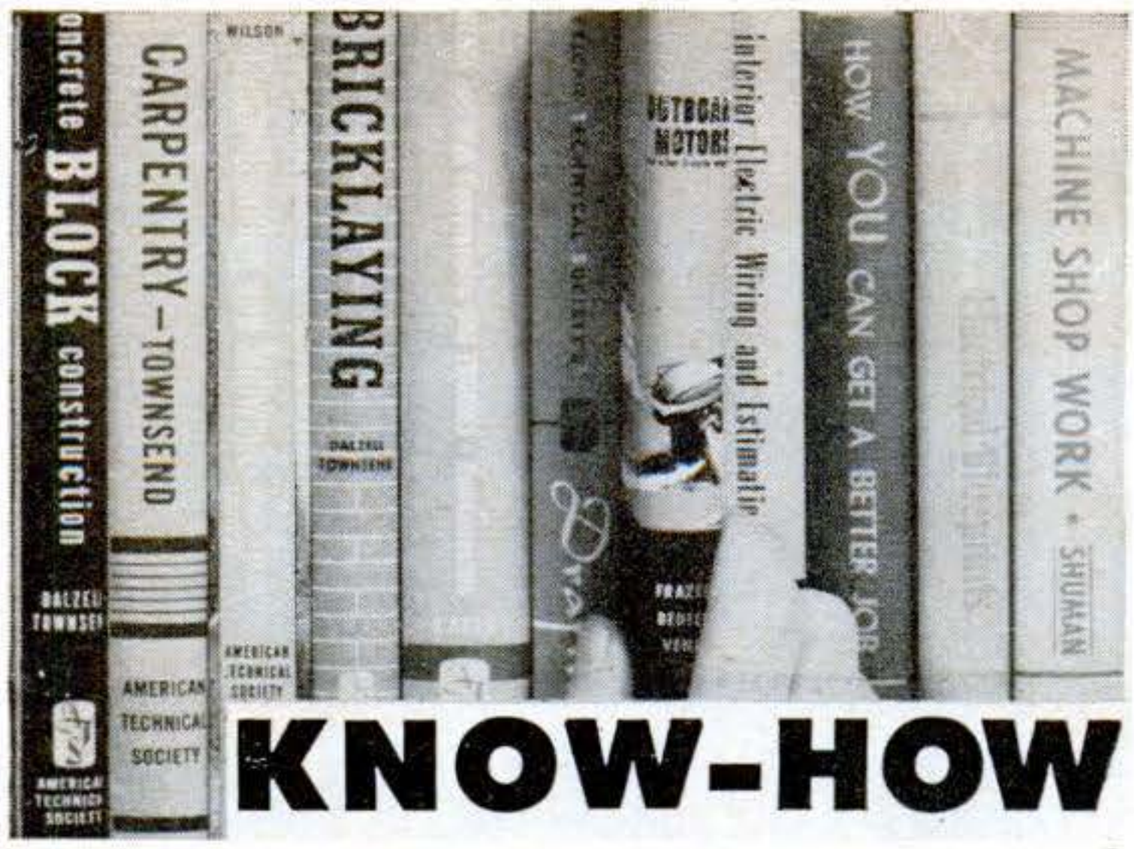
Enjoy thousands of *extra* miles of carefree, economical driving by installing Perfect Circle's 2-in-1 Chrome piston rings. Perfect Circle Corporation, Hagerstown, Indiana; the Perfect Circle Co., Ltd., Toronto, Ontario.

Perfect Circle

2 in 1 chrome piston rings

The Standard of Comparison

Copyrighted material



KNOW-HOW

ALWAYS AT YOUR FINGERTIPS!

Always there to show and tell you the things you want to know for use on your job, your own building repair project, or to further your career. Published by the American Technical Society, these beautifully and durably bound books are the best in the field. They cover, Automotive, Building Trades, Electrical, Machine Trades, Mathematics, Engineering, General, and How-To-Do-It subjects.

Publishers since 1898, The American Technical Society makes their books available to everyone, and will permit the readers of this publication to use any books they select for a 10 day trial. This means you can examine them in your own home and prove the value of having "know-how at your fingertips." If you do not find them to be the most valuable investment you have ever made, return them within 10 days and owe nothing.

USE ANY OF THESE BOOKS 10 DAYS FREE

American Technical Society (Publishers Since 1898)
848 East 58th Street, Dept. K-520
Chicago 37, Illinois

Please rush me the books I'm checking below to examine at home. If I'm not convinced that any one or more of these books are the best investment I've ever made, I may return them and owe nothing.

BUILDING AND HOME WORKSHOP
☐ **Concrete Block Construction for Home and Farm**
Building your own garage, summer home, etc. **$3.25**
☐ **Carpentry—beginner or tradesman**
504 pages 586 illustrations **$2.50**
☐ **Cabinet Making and Millwork**
Bricklaying Skill and Practice—Complete **$3.50**
ENGINES—AUTOMOTIVE AND OUTBOARD MOTORS
☐ **Automotive Engines—Maintenance & Repair** **$4.95**
FARM
☐ **Farm Shop—The mechanical skills needed on farm** **$4.95**
DRAFTING
☐ **Drafting—for everyone** **$3.80**
ELECTRICAL
☐ **Interior Electric Wiring—residential and farm** **$4.25**
☐ **Fundamentals of Electricity**
415 pages 325 illustrations **$3.50**
☐ **How to Read Electrical Blueprints:**
home, industrial, motors, controls, etc. **$4.75**
MACHINE TRADES
☐ **Machine Shop Operations and Setups** **$5.50**
MATHEMATICS
☐ **Practical Mathematics**
For beginners and those who have forgotten **$3.00**
MEDICAL
☐ **Basic Medical Terms and Techniques—Simplified $3.50**

Name.....

Address.....

City and Zone.....State.....

I prefer
☐ Ten day no-cost-trial. If I keep books, will remit by check or Money Order. (3 book limit on free trial—no limit on C.O.D. or cash plans.)
☐ Send C.O.D. Same return privilege—money refunded.
☐ I'm enclosing $..... now in full payment to save postage—same return privilege—money refunded.

News and Pictures

Houseboats Fit Any Purse.....101
Plastic Bubble Hides Plane's Radar.....113
This X Ray Uses Hot Atoms.....117
Sea Serpent? Just a Gray Whale.....117
Tape Recordings Chase Gulls Away.....123
Falling Pinwheels Drop Supplies.....123
Moving Sidewalk Gets Texans to Rodeo..125
Marsh Digger Opens Everglades.....126
Russian Planes Try Strange Wings.....128
Bottles to Map Ocean Currents.....128
Radar Detects Meteor Dust.....129
Army Tries "Machine-Gun" Hypo.....129
"Armored" Jeep Rakes In Golf Balls.....137
"Gun" Hunts for Radioactive Rock.....137
Jackknife Car Gives Cushioned Ride.....148
This Swimmer's a Frogman on Ice.....148
She's a Stand-In for Fish.....149
Modern Lamplighter Inside Dam.....152
Folding Hothouse Goes Up Fast.....152
Tiny Plane Packs Atom-Bomb Wallop....162
Cuban Canal to Open New Sea Routes..162
Camera Has Automatic Shift.....166
Gun Shoots Plane's Tanks Free.....167
Nutshells Blast Dirt Off Jet.....167

Mechanics and Homebuilding

Homemade Jet Pump Empties Pool.....184
You Can Raise Chicks in a Tub.....184
Signal Light on TV Announces Guests....193
Tennis Racket Is Table Stand.....193
An Easy Chair for Outdoor Living.....194
How to Use Your Dimmer Switch.....199
Drawer Under Dash Holds Overflow.....202
Dado Head Doubles as Jigsaw.....202
A Motor Scooter Mows Their Lawn.....215
Boat-Deck Railing Encloses Sun Deck....227
Wooden Grille Decorates Screen Door..227
Three Decorative Lamps for Your Home..228
Coat-Hanger Hook Tames Rose Thorns..230
Kink Reduces Bulb Changing.....230
Harness Holds Sprayer.....231
Do It the Easy Way.....231

Departments

Letters 12
Last-Minute News and Notes..... 95
Craftsmen at Work..... 96
I'd Like to See Them Make.....108
New Ideas from the Inventors.....157
New Tools.....176
Almanac for Motorists.....188
New for Your Car.....189
New for the Handy Man.....208
Wordless Workshop 216
Keeping the Home Shipshape.....225
New Shop Ideas.....238
Hints from the Model Garage.....248

Copyrighted material

Cast your ballot for a successful future!

277 I.C.S. COURSES

Whether you stand at a machine or sit at a desk . . . whether you're making $75 a week or $75 hundred a year . . . whether your interest is Power Plants or Paper Pulp, Advertising or Electronics . . . chances are I.C.S. has exactly the course you need to get ahead.

I.C.S. is not only the oldest and largest correspondence school. It also offers the most courses. 277 in all. Each one success-proved by graduates who rose to top technical and administrative positions. Chief engineers. Superintendents. Foremen. Managers. Executive assistants.

I.C.S. Courses cover bedrock facts and theory plus practical, on-the-job applications. No skimping. Texts are prepared by leading business and industrial authorities working with I.C.S. editors and educators. They are constantly being reviewed and revised in line with current developments.

As an I.C.S. student, you study in your spare time, set your own pace. No time lost getting to class or waiting for slower students to catch up. If you wish, I.C.S. will make progress reports to your employer. You win recognition as a "comer," one who is ready to move ahead. Thousands of students report pay increases and promotions within a few months of enrollment. All graduates win the coveted, approved I.C.S. diploma.

3 FREE BOOKS! Check the subject that interests you in the coupon below. I.C.S. will rush you (1) a special book outlining your opportunities in this field, (2) the 32-page gold mine of career tips, "How to Succeed," (3) a sample I.C.S. lesson demonstrating the famous "I.C.S. Method." Don't delay. "X" MARKS OPPORTUNITY.

For Real Job Security—Get an I.C.S. Diploma! . . . Easy-pay Plan . . . I.C.S., Scranton 9, Penna.

INTERNATIONAL CORRESPONDENCE SCHOOLS ICS

BOX 23314E, SCRANTON 9, PENNA. (Partial list of 277 courses)

Without cost or obligation, send me "HOW to SUCCEED" and the opportunity booklet about the field BEFORE which I have marked X (plus sample lesson):

ARCHITECTURE and BUILDING CONSTRUCTION
- ☐ Air Conditioning—Refrig.
- ☐ Architecture
- ☐ Architectural Interior
- ☐ Building Contractor
- ☐ Building Maintenance
- ☐ Carpenter and Mill Work
- ☐ Estimating
- ☐ Heating
- ☐ Painting Contractor
- ☐ Plumbing
- ☐ Reading Arch. Blueprints

ART
- ☐ Cartooning
- ☐ Commercial Art
- ☐ Fashion Illustrating
- ☐ Magazine Illustrating
- ☐ Show Card and Sign Lettering
- ☐ Sketching and Painting

AUTOMOTIVE
- ☐ Auto Body Rebuilding
- ☐ Auto Elec. Technician
- ☐ Auto-Engine Tune Up
- ☐ Automobile

AVIATION
- ☐ Aeronautical Engineering Jr.
- ☐ Aircraft & Engine Mechanic

BUSINESS
- ☐ Advertising
- ☐ Bookkeeping and Accounting
- ☐ Business Administration
- ☐ Business Correspondence
- ☐ Public Accounting
- ☐ Creative Salesmanship
- ☐ Federal Tax
- ☐ Letter-writing Improvement
- ☐ Office Management
- ☐ Professional Secretary
- ☐ Retail Business Management
- ☐ Sales Management
- ☐ Stenographic-Secretarial
- ☐ Traffic Management

CHEMISTRY
- ☐ Analytical Chemistry
- ☐ Chemical Engineering
- ☐ Chem. Lab. Technician
- ☐ General Chemistry
- ☐ Natural Gas Prod. & Trans.
- ☐ Petroleum Engineering
- ☐ Plastics
- ☐ Pulp and Paper Making

CIVIL, STRUCTURAL ENGINEERING
- ☐ Civil Engineering
- ☐ Construction Engineering
- ☐ Highway Engineering
- ☐ Reading Struct. Blueprints
- ☐ Sanitary Engineering
- ☐ Structural Engineering
- ☐ Surveying and Mapping

DRAFTING
- ☐ Aircraft Drafting
- ☐ Architectural Drafting
- ☐ Electrical Drafting
- ☐ Mechanical Drafting
- ☐ Mine Surveying and Mapping
- ☐ Plumbing Drawing and Estimating
- ☐ Structural Drafting

ELECTRICAL
- ☐ Electrical Engineering
- ☐ Electrical Maintenance
- ☐ Electrician ☐ Contracting
- ☐ Lineman

HIGH SCHOOL
- ☐ Commercial ☐ Good English
- ☐ High School Subjects
- ☐ Mathematics

LEADERSHIP
- ☐ Foremanship
- ☐ Industrial Supervision
- ☐ Leadership and Organization
- ☐ Personnel-Labor Relations

MECHANICAL AND SHOP
- ☐ Gas—Electric Welding
- ☐ Heat Treatment ☐ Metallurgy
- ☐ Industrial Engineering
- ☐ Industrial Instrumentation
- ☐ Industrial Supervision
- ☐ Internal Combustion Engines
- ☐ Machine Design-Drafting
- ☐ Machine Shop Inspection
- ☐ Machine Shop Practice
- ☐ Mechanical Engineering
- ☐ Quality Control
- ☐ Reading Shop Blueprints
- ☐ Refrigeration
- ☐ Sheet Metal Worker
- ☐ Tool Design ☐ Toolmaking

RADIO, TELEVISION
- ☐ Industrial Electronics
- ☐ Practical Radio TV Eng'r'ng
- ☐ Radio and TV Servicing
- ☐ Radio Operating
- ☐ Television Technician

RAILROAD
- ☐ Air Brakes ☐ Car Inspector
- ☐ Diesel Locomotive
- ☐ Locomotive Engineer
- ☐ Section Foreman

STEAM AND DIESEL POWER
- ☐ Combustion Engineering
- ☐ Diesel—Elec. ☐ Diesel Eng's
- ☐ Electric Light and Power
- ☐ Stationary Fireman
- ☐ Stationary Steam Engineering

TEXTILE
- ☐ Carding and Spinning
- ☐ Cotton, Rayon, Woolen Mfg.
- ☐ Finishing and Dyeing
- ☐ Loom Fixi'g ☐ Textile Des'ing
- ☐ Textile Eng'r'g ☐ Throwing
- ☐ Warping and Weaving

MISCELLANEOUS
- ☐ Domestic Refrigeration
- ☐ Marine Engineering
- ☐ Ocean Navigation
- ☐ Professional Engineering
- ☐ Short Story Writing
- ☐ Telephony

Name_____ Age_____ Home Address_____

City_____ Zone_____ State_____ Working Hours_____ A.M. to P.M._____

Occupation_____

Canadian residents send coupon to International Correspondence Schools, Canadian, Ltd., Montreal, Canada. . . . Special tuition rates to members of the U. S. Armed Forces.

Copyrighted material

The Car That "Swept the Field" at Daytona . . .

CHRYSLER 300

It's the most breathtaking car to drive you've ever known! You'll be off and away in this brilliant new low-slung beauty to the throaty roar of 300 hp – the greatest, *safest* power in any American car. You'll feel the same thrill that today's most avid sports-car enthusiasts enjoy . . . the same light-handed, light-footed control and ground-gripping security.

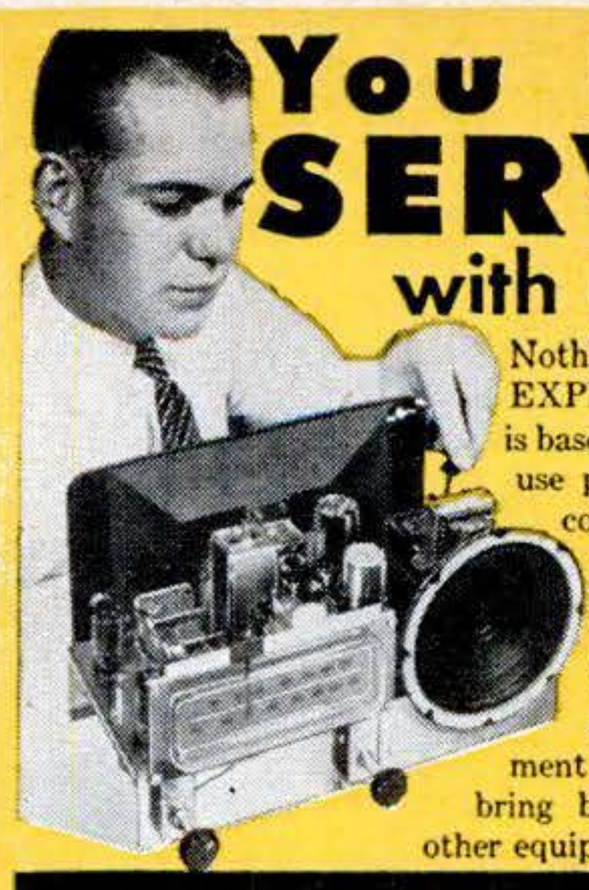
In a Chrysler 300 *you* can enjoy *the same flashing performance that won 1st and 2nd places in the 1955* NASCAR *Daytona Beach "Flying Mile," at speeds over 130 mph* – plus the safe maneuverability that swept 1st and 2nd places in the 160-mile Grand National stock car race. For the sleek new CHRYSLER 300 . . . in regular, though limited production . . . has the same road-hugging *look, feel* and *safety* that have made the Chrysler name famous in the world's greatest road races. Arrange for a drive today . . . your Chrysler Dealer is the man to see!

AMERICA'S MOST POWERFUL STOCK CAR

Brake HP: 300 @ 5200 rpm . . . Comp. Ratio: 8.5 to 1 . . . Two 4-barrel carburetors . . . Special suspension for maximum cornering, road-hugging performance and control . . . PowerFlite Automatic Transmission . . . Power Brakes . . . Dual exhaust system . . . Wheelbase: 126 inches . . . Over-all length: 219 inches . . . Height: 58.6 inches.

See Your Chrysler-Plymouth Dealer

Copyrighted material



You Practice SERVICING with Kits I Send You

Nothing takes the place of PRACTICAL EXPERIENCE. That's why NRI training is based on LEARNING BY DOING. You use parts I send to build many circuits common to Radio and Television. With my Servicing Course you build the modern Radio shown at left. You build a Multitester and use it to help make $10, $15 a week fixing sets in spare time while training. All equipment is yours to keep. Coupon below will bring book of important facts. It shows other equipment you build.

You Practice BROADCASTING with Kits I Send You

As part of my Communications Course I send you parts to build low-power Broadcasting Transmitter at left. Use it to get practical experience. You put this station "on the air" . . . perform procedures demanded of broadcasting station operators. An FCC Commercial Operator's License can be your ticket to a bright future. My Communications Course trains you to get your license. Mail coupon. Book shows other equipment you build for practical experience.

I Will Train You at Home in Spare Time to be a RADIO-TELEVISION Technician

TELEVISION

Making Jobs, Prosperity

25 million homes have Television sets now. Thousands more sold every week. Trained men needed to make, install, service TV sets. About 200 television stations on the air. Hundreds more being built. Good job opportunities here for qualified technicians, operators, etc.

J. E. SMITH, President
National Radio Institute
Washington, D. C.
Our 40th Year

America's Fast Growing Industry Offers You Good Pay, Success

Training PLUS opportunity is the PERFECT COMBINATION for job security, advancement. When times are good, the trained man makes the BETTER PAY, gets PROMOTED. When jobs are scarce, the trained man enjoys GREATER SECURITY. NRI training can help assure you and your family more of the better things of life. Radio is bigger than ever with over 3,000 broadcasting stations and more than 115 MILLION sets in use, and Television is moving ahead fast.

N.R.I. Training Leads to Good Jobs Like These

I TRAINED THESE MEN

"I have progressed very rapidly. My present position is Studio Supervisor with KEDD Television, Wichita."—Elmer Frewaldt, 3026 Stadium, Wichita, Kans.

"Fix sets part time in my shop. Made about $500 first three months of the year. Could have more but this is about all I can handle."—Frank Borer, Lorain, Ohio.

"I've come a long way in Radio and Television since graduating. Have my own business on Main Street."—Joe Travers, Asbury Park, New Jersey.

"I didn't know a thing about Radio. Now have a good job as Studio Engineer at KMMJ."—Bill Delzell, Central City, Nebraska.

BROADCASTING: Chief Technician, Chief Operator, Power Monitor, Recording Operator, Remote Control Operator. SERVICING: Home and Auto Radios, Television Receivers, FM Radios, P.A. Systems. IN RADIO PLANTS: Design Assistant, Technician, Tester, Serviceman, Service Manager. SHIP AND HARBOR RADIO: Chief Operator, Radio-Telephone Operator. GOVERNMENT RADIO: Operator in Army, Navy, Marine Corps, Forestry Service Dispatcher, Airways Radio Operator. AVIATION RADIO: Transmitter Technician, Receiver Technician, Airport Transmitter Operator. TELEVISION: Pick-up Operator, Television Technician, Remote Control Operator.

Start Soon to Make $10, $15 a Week Extra Fixing Sets

My training is practical, complete; is backed by 40 years of success training men at home. My well-illustrated lessons give you basic principles you need and my skillfully developed kits of parts "bring to life" things you learn from the lessons. I start sending you special booklets that show you how to fix sets the day you enroll. Multitester you build with my parts helps you discover and correct set troubles, helps you make money fixing neighbors' sets in spare time while training. Many make $10, $15 a week extra this way.

Mail Coupon — Find Out What Radio-Television Offer You

Act now to get more of the good things of life. I send actual lesson to prove NRI home training is practical, thorough. My 64-page book "How to be a Success in Radio-Television" shows what my graduates are doing and earning. It gives important facts about your opportunities in Radio-Television. Take NRI training for as little as $5 a month. Many graduates make more than the total cost of my training in two weeks. Mail coupon now to: J. E. SMITH, President, Dept. 5EB, National Radio Institute, Washington 9, D. C. Our 40th year.

AVAILABLE to all qualified VETERANS UNDER G.I. BILLS

Good for Both-FREE

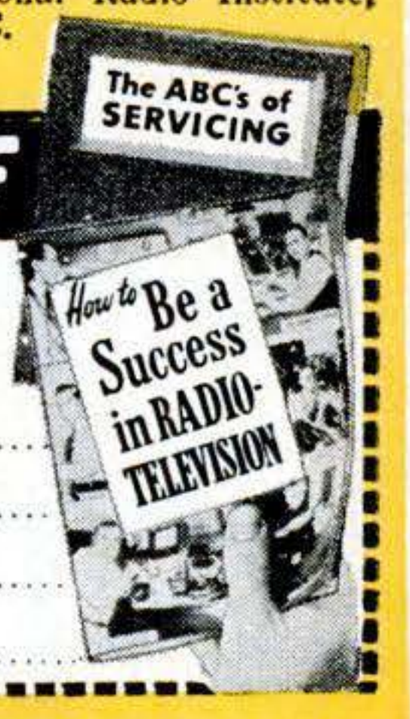
MR. J. E. SMITH, President, Dept. 5EB
National Radio Institute, Washington 9, D. C.
Mail me Sample Lesson and 64-page Book, FREE.
(No salesman will call. Please write plainly.)

Name.....Age.....

Address.....

City.....Zone....State.....

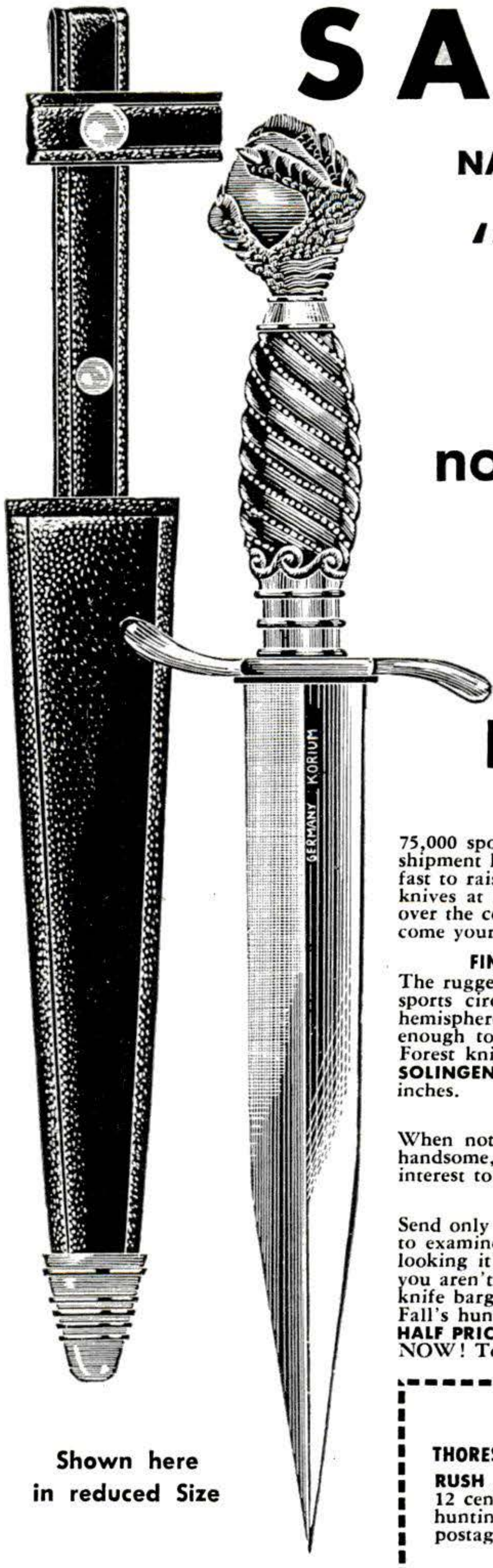
VETS write in date of discharge .....



Mail Today-Tested Way to Better Pay

Copyrighted material

SACRIFICE!



Shown here in reduced Size

NATIONALLY ADVERTISED—Reg. 3.95

"BLACK FOREST" HUNTING KNIFE

now 1/2 price 1.98

Made in GERMANY Fine SOLINGEN Steel

10 INCHES OVER-ALL

75,000 sportsmen gladly paid 3.95 for this famous hunting knife. However, a new shipment has just arrived—too late for the past hunting season. We're forced to sell fast to raise cash. Our misfortune is your good luck. We're sacrificing these superb knives at **HALF-PRICE**—only **1.98.** This is exactly the SAME knife now selling all over the country for **TWICE** our low price! It's a sensational bargain that may never come your way again!

FINE QUALITY SOLINGEN STEEL—Hand Forged by German Craftsmen

The rugged beauty of this splendid knife has already won recognition for design in sports circles on the Continent. From the moment it appeared in the Western hemisphere it has been a prime favorite with sportsmen. Its blade is actually sharp enough to shave with. The genuine leather scabbard is metal tipped. The Black Forest knife will stand up against the most rugged treatment. The rough, sturdy **SOLINGEN** Steel by **KORIUM** assures you years of dependable service. Length: 10 inches.

IDEAL FOR DEN OR REC ROOM DECORATION

When not in use, display the Black Forest knife in your rec room or den. The handsome, unusual handle and the sleek, graceful lines add a note of drama and interest to your home.

TEST . . . COMPARE BEFORE YOU BUY!

Send only **1.98** plus **12** cents postage and we will ship the Black Forest knife to you to examine for 5 days at our risk. But remember—you're not buying! You're only looking it over. Test it as you like . . . compare it to **ANY** other knife made. If you aren't completely satisfied . . . if you aren't convinced it's the greatest hunting knife bargain of the year, return it and your 2.10 comes back at once! When next Fall's hunting season rolls 'round, the price will be 3.95 again. Get yours now at **HALF PRICE!** Send check, money order or 2.10 in cash for immediate delivery. Do it NOW! Tomorrow may be too late.

This Coupon Saves You $1.97

THORESEN'S, Dept. 7-E-80, 352 Fourth Ave., New York 10, N. Y.

RUSH ..... genuine **KORIUM BLACK FOREST** knives at cut price of **1.98** plus 12 cents postage on 5-day home trial. If I'm not convinced it's the greatest hunting knife bargain of the year, you will refund my 1.98 plus the 12c postage.

☐ **2.10 enclosed. Rush prepaid.**

☐ **Send C.O.D. for 2.10 plus 25c postage fees.**

NAME.....

ADDRESS.....

CITY.....STATE.....

THORESEN'S

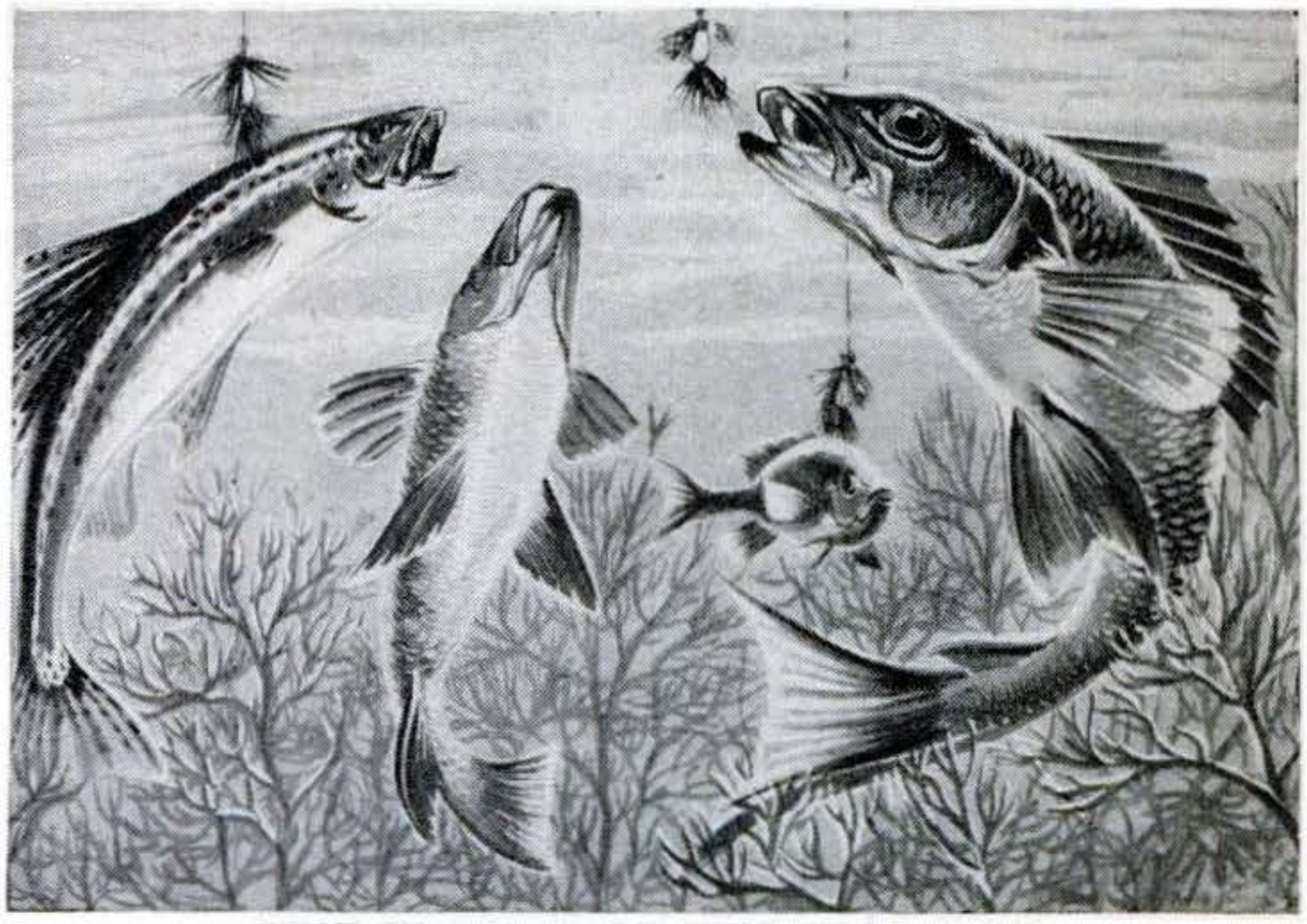
Dept. 7-E-80
352 Fourth Ave.
New York 10, N.Y.

Copyrighted material

NEW, EXCITING SEX HORMONES MAKE FISH BITE LIKE CRAZY!

Quick–Easy–Convenient To Use! Just Dab On Your Favorite Bait, Drop In Water And Fish As Usual!

Are you down on your fishing luck? Have you been coming home recently with an empty creel? Have you invested hard earned cash on the latest fishing tackle, fancy lures and bait—only to be frustrated time after time? No matter how unlucky you've been, this new discovery may change all that—quickly! Now, at last, you too can use a secret that professionals have tried with astounding results—a secret that even a schoolboy can use to catch more fish, no matter what the weather, bait or tackle. Yes, you can even get big ones out of what the misinformed call "fished-out" waters. And you can do it with your present fishing methods and equipment! No need for special bait . . . whether you fish in a river, lake, pond or the open sea . . . whether you cast, spin, troll or do still-fishing . . . this new discovery will give you the thrill of your life!



SCIENTISTS DISCOVER STRANGE HABITS OF SEA LIFE

Man has been fishing since the dawn of time. Yet during countless centuries he's never really known much about sea life. Then leading scientists from all over the world got on the job, including the U. S. Dept. of Fisheries. Ichthyologists, chemists, zoologists and sportsmen joined in the quest. Millions of dollars were spent on gigantic glass aquariums, sub-marine cameras, recording devices and lab equipment. In less than a generation man learned more about the mysteries of sea life than in the previous 10,000 years!

EXPERIMENTS PROVE FISH ARE ALMOST BLIND

Here is the most startling discovery that the scientists unearthed: most fish—of ALL species—have very poor eyesight compared to birds and mammals. Some are almost blind! No wonder, then, that you can use the most attractive dry lures —yet go home after a day's fishing excursion with little to show for it but a sunburn!

It doesn't make much difference how good the bait is you use nor how hungry a fish may be—if he doesn't SEE it, if he isn't DRAWN to it, you won't get a nibble! And test after test proved that unless you get the lure right under the fish's nose, you simply cannot attract him to your hook!

NEW SEX-HUNGER FISH LURE DEVELOPED BY GERMAN CHEMIST

The new **Lurene** formula was developed by a German chemist, a graduate of the University of Tubingen in Wurtemburg, Germany. An acknowledged leader in his profession, he knew that certain lures and bait failed simply because many fish were nearly blind. But he learned that Mother Nature in her bounty provided fish with extra powerful sense-instincts that led them irresistibly to their food supply.

TEST IT YOURSELF THIS EASY WAY!

No elaborate equipment required! An ordinary glass aquarium tank and ANY species of fish will prove this new method really works! Drop in 2 or 3 lines with your favorite bait. Treat only ONE with the new LURENE "triple-instinct" preparation. It's the same bait . . . the same lures . . . yet right there before your eyes you'll be witnessing a fascinating spectacle! You'll hardly believe your eyes! The fish, as if compelled by some unknown power are drawn to the Lurene-treated line. This article explains how this "triple-instinct" in fish can increase your fishing luck.

This sense-instinct for want of a better name may be called **Smell-Taste.** In other words, a fish both **SMELLS** and **TASTES** at one and the same time! For this purpose, the bodies of fish are covered with thousands upon thousands of tiny smell organs—without which life would be impossible. Armed with this knowledge, the eminent chemist finally developed the now famous **Lurene** formula.

NOW!—SEX FACTOR ADDS EXTRA "PUNCH"

Scientists have long known that the sex factor is one of the most compelling instincts in sea life. Fish go to fantastic lengths to fertilize their eggs. They travel countless miles to fertilize them—go through incredible torture, accomplish almost impossible tasks. One of the most wondrous sights of nature is to watch male salmon struggle up river fish-ladders to fertilize the spawn. NOW—for the first time ever—natural sex hormones have been added to the new **Lurene** formula This has increased production costs considerably—but you'll agree after using it that it's certainly worth it! And it's SO easy to use—just dab a little on the plug or bait, drop it in the water and fish as usual. LURENE works in lakes, streams, ponds or in the ocean. It makes no difference if you still-fish, troll, cast or spin. **Lurene** disperses in the water, giving you greater **penetration,** longer **range** and far more **attraction power.**

RESULTS GUARANTEED OR IT DOESN'T COST YOU 1c

Now you can try **Lurene** at our risk! It **must** help you catch **more** fish—**faster! Lurene** must prove to be the **best** scent lure you've ever used—or your money back! You're invited to try it without obligation. We want you to see for yourself how **Lurene** releases its deep, penetrating "call" into the surrounding waters. See how the mysterious instincts of the sea world help attract fish to your hook. **And** —of this you can be sure: **Lurene really works**—it positively helps draw 'em in! So we say: **try** it and judge for yourself. See if you don't get the big ones—even in "fished-out" waters! Use it to pull in your favorites . . . trout, pickerel, catfish, blues, weaks, pike, perch, bass, snappers, porgies. You need send no money now. Simply deposit **1.98** plus postage with your mailman when the **Lurene** arrives—or mail 1.98 now for immediate prepaid shipment. But please remember: you're **trying**—not buying! Unless you're satisfied in every way with this new, different product, it won't cost you a penny. **rush** the coupon now while supplies are available to:

LURENE CO., Dept. 7-E-10
352 Fourth Ave., New York 10, N.Y.

FAMOUS SPORTS EDITOR PRAISES LURENE FORMULA

Millions of readers follow Walter S. Miller's sports column, "Rod, Gun & LENS," which appears in over 15 metropolitan newspapers. He tests new products thoroughly, warning readers against shoddy, defective articles but also giving praise where praise is due. This is what this great sports authority says about LURENE:

"Recently a product called 'Lurene', a prepared bait oil came into my possession with instructions to test it and pass on my opinion to you. Accordingly here are the results on several such tests.

"Using an artificial lure of the spoon type in salt water the number of casts per fish was 27. With 'Lurene' the number of casts per fish was 9. Accordingly this product is active enough to salt water fishermen since tests prove it will triple your catch regardless of type of fish. "Again using an artificial lure of the spinner type in fresh water the number of casts per fish was 50. Using 'Lurene' the number of casts per fish was reduced to the phenomenal low of 10 casts per fish. The results proved beyond doubt that in fresh water 'Lurene' quintupled the catch. I heartily endorse this product."

Change Your Fishing Luck—Mail Coupon Today!

LURENE CO., Dept. 7-E-10
352 Fourth Ave., New York 10, N. Y.

Rush—1.98 packages of **Lurene** on 5-day Free Trial. It is guaranteed—the formula **must** help me catch more fish. It must give me thrilling results. Otherwise, you will refund my 1.98—no questions asked.

☐ **$1.98 enclosed—rush prepaid.**
☐ **Send C.O.D. plus postage.**

Name.....

Address.....

City.....*State*.....

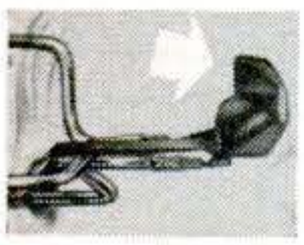
☐ **SPECIAL OFFER: Save $1.00 by ordering 2 packages for only $2.98. Send check, cash or m.o. on this offer as we cannot ship C.O.D. at this low price.**

Copyrighted material

3 WAYS G-E *All-Weather* HEADLAMPS MAKE NIGHT DRIVING SAFER THAN EVER BEFORE

1. HELP YOU SEE THROUGH FOG, RAIN, SNOW. Compare the actual photos above. Obstacles you can hardly see with ordinary headlamps (top photo) are clearly visible with new General Electric *All-Weather* Headlamps (bottom photo). Here's why:

With ordinary headlamps, some of the direct light from the filament shines upward in front of the windshield. The fog then mirrors it back into the driver's eyes as *glare*. His vision is reduced.


New G-E Filament Shield

But with G-E *All-Weather* Headlamps, a built-in filament shield blocks off this uncontrolled upward light. The main beam is not affected. Result: *much* better visibility in fog, rain and snow.

2. HELP YOU SEE THE ROAD AGAINST ONCOMING HEADLAMPS. The light is focused better by a new-design reflector and lens. It extends the lighted area along the right side and shoulder of the road by as much as 80 feet. A *big* help in driving against oncoming headlamps!

3. GIVE 25% MORE LIGHT. Each beam of the 6-volt headlamp has 5 more watts; filaments are improved. The 25% increase in light shows up parked cars, curves and pedestrians that are out of range of ordinary headlamps.

Make your car safer for night driving with G-E *All-Weather* Headlamps now. Already approved in 44 states. Most garages and service stations have them or will soon.

G-E *All-Weather* HEADLAMPS

6 volt per pair **$3.60** plus nominal installation charge

12 volt **$3.80** per pair

Progress Is Our Most Important Product

GENERAL ELECTRIC

Copyrighted material

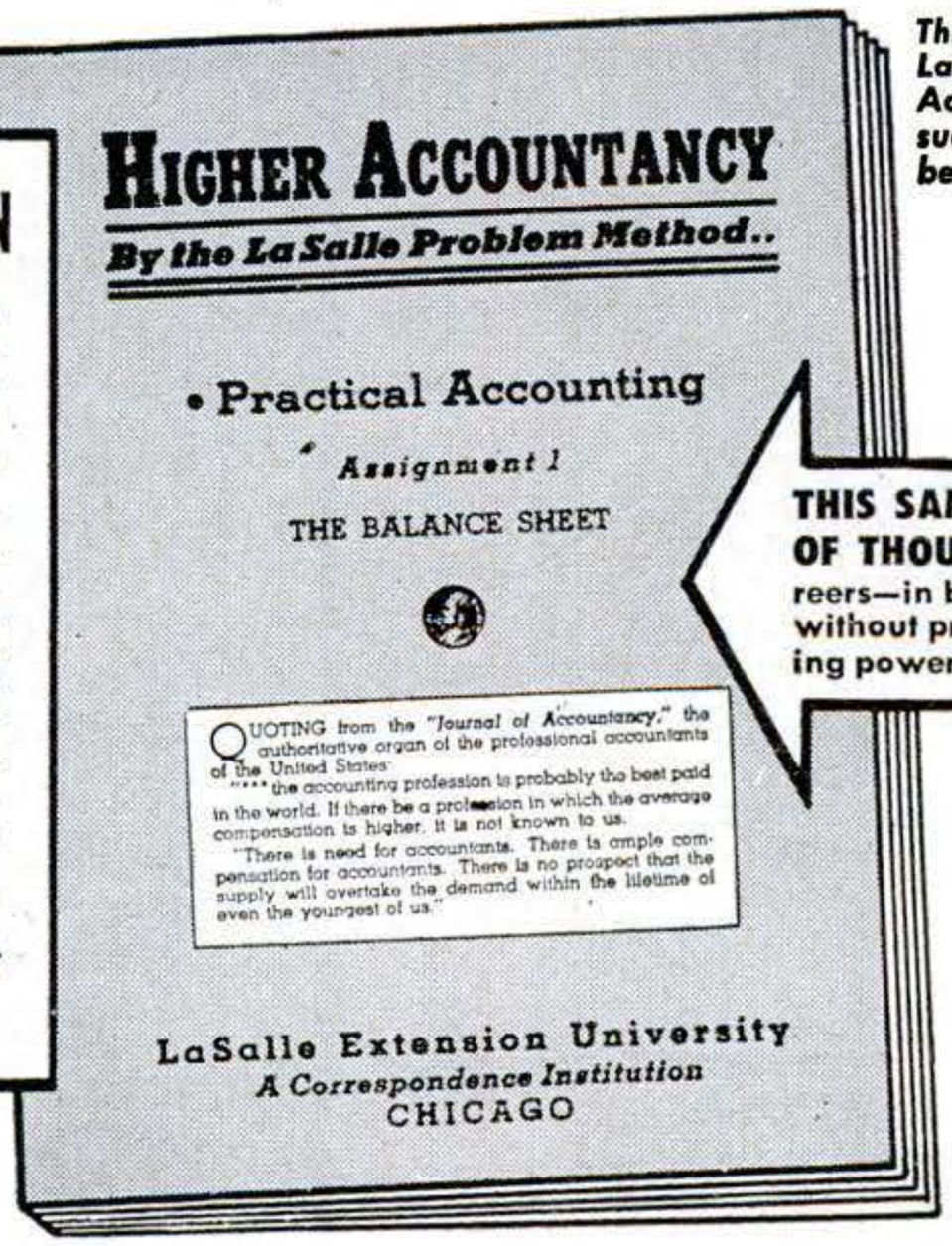
This *FREE SAMPLE LESSON* will prove you can become an expert BOOKKEEPER . . . ACCOUNTANT OR C.P.A.

This well-paid LaSalle-trained Accountant's success could be yours.

FREE SAMPLE LESSON

We offer you this free sample lesson so that you can *prove to yourself* that you CAN master Accountancy—quickly, thoroughly—in spare time at home.

You will see exactly how LaSalle's famous "Problem Method" works . . . how you are led step-by-step through actual accounting work—*learning by doing* and not by study of theory alone. First you tackle easy problems, then more difficult ones—until soon you master them all. And at every step you have the close personal guidance of LaSalle's large staff of C.P.A. instructors.



THIS SAME LESSON HAS STARTED HUNDREDS OF THOUSANDS toward well-paid accounting careers—in business, government, and as C.P.A.'s. Even without previous knowledge, progress is rapid—earning power climbs fast. This sample lesson shows why.

Nearly 10% of all C.P.A.'s in the U.S. have been trained by the LaSalle Problem Method

IF you have been envying the high incomes and good jobs enjoyed by thousands of men and women Accountants today . . . incomes ranging from $4,000 to $10,000 and more per year . . . why not launch such a career for yourself?

Do you doubt that you can?

Then let us send you—without cost or obligation—the same Lesson Number One with which LaSalle has started several hundred thousand men and women toward successful accounting careers. We want you to see for yourself how this remarkable method, originated by LaSalle, makes Accountancy simple, interesting, practical, and certain . . . how it leads you step-by-step to a complete mastery of Accounting—and on up to the coveted degree of Certified Public Accountant if you so aspire.

It doesn't matter whether you've had previous bookkeeping experience, or whether you don't know a debit from a credit. Whether you wish to qualify as an expert bookkeeper, advanced accountant, cost accountant, auditor, government accountant, income tax specialist, or public accountant . . . you'll find in LaSalle's Problem Method the exact plan to prepare you rapidly and inexpensively—in spare hours at home—without losing a day from your present job.

So right now, today . . . if you are an adult, employed, and earnestly ambitious for rapid advancement in this highest-paying of all professions . . . send your name and address on the coupon below. We'll send the free sample lesson—plus our 48-page book outlining today's career opportunities and how you can qualify for them. A coupon like this has started many thousands toward greater success. It can do the same for you. Mail it today!

GOOD-PAY JOBS IN 5 BIG FIELDS

If you were an expert accountant right now, chances are you would find yourself among the highest-paid of all professional men and women. Surveys show that accountants earn more than those in other major professions.

There are five big fields of opportunity open to Accountancy-trained men and women . . . opportunities that are wide open and highly inviting, offering maximum income and job security in good times or bad. And under LaSalle's "Problem Method" you can start earning while still learning—either in spare-time or full-time employment . . . or in business for yourself with no capital required.

Get the latest information by sending for our 48-page book, "Accountancy, the Profession That Pays" . . . plus free sample lesson. The coupon at right will bring both to you without cost or obligation. LaSalle Extension, 417 S. Dearborn St., Chicago 5, Ill.

Clip Coupon . . . Mail TODAY!

LaSalle Extension University . . . *A Correspondence Institution*
Dept. 583H, 417 S. Dearborn Street, Chicago 5, Illinois

YES, I want to see how LaSalle's "Problem Method" works . . . how I can qualify for high-pay Accountancy positions. Send Free Sample Lesson—also your 48-page book, "Accountancy, the Profession That Pays" . . . all without cost or obligation.

Name.....*Age*.....

Street Address.....

City, Zone & State.....

Present Position.....

Copyrighted material

Draw Mitzi Gaynor

MITZI GAYNOR
Starring in 20th Century-Fox Cinemascope — Irving Berlin's "There's No Business Like Show Business".

TRY FOR A FREE 2-YEAR ART SCHOLARSHIP WORTH $335.00

Try for free training in advertising art or illustrating.

$335.00 Scholarship is offered by a school famous among artists, world's largest home study art school. Graduates include many who earn real money today.

You're trained by professional artists. You get individual coaching. *Plus* a complete Drawing Outfit. *Plus* an Art Library of illustrated textbooks to which over 40 leading artists have contributed.

Draw Mitzi Gaynor's head 5 inches high. Use pencil only. All drawings must be received by June 30, '55. None returned. Winner notified. Amateurs only. Our students not eligible. Mail your drawing today!

ART INSTRUCTION, INC., STUDIO 5145
500 S. 4th St., Minneapolis 15, Minnesota

Please enter my drawing in your June contest.
(PLEASE PRINT)

Name_____ **Age**____

Address_____

City_____ **Zone**____

County_____ **State**_____

Occupation_____ **Phone**_____

Letters—

Hot Plugs Can't Scare Gus

In the February "Letters" column [p. 18] Mr. Dodakian seems to doubt that Gus could switch wires on the spark plugs while the engine is running—he'd get a shock. What would Mr. Dodakian think of changing plugs while in flight on a high-compression airplane engine with a scintilla magnet furnishing the shocking current? Lots of mechanics can ground out all four plugs on a four-cylinder engine with their fingers and stop the engine that way. The expression on

the person's face undergoes a slight change during the process, however.

WM. MORROW, Antioch, Tenn.

Three Honks for Careless Drivers

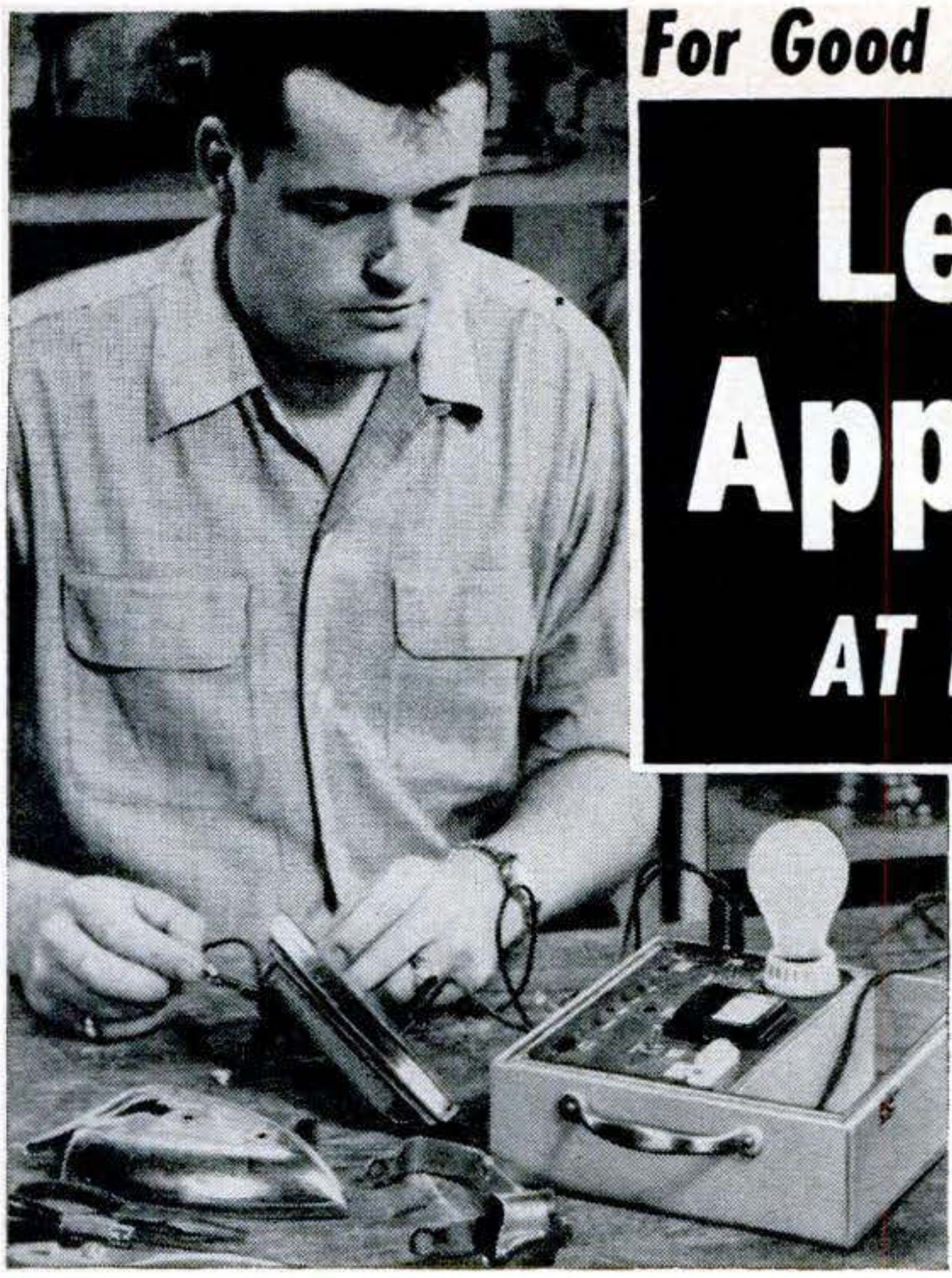
The Careful Drivers Club of Denver is sponsoring a campaign to shame traffic violators into safer driving. When a citizen sees a violation, he signals the violator by blowing his horn three times, making the blasts short to keep noise down.

J. M. PHELPS,
President, Careful Drivers Club, Denver

Work on Choke Pays Off

I was only getting 12 miles to the gallon with my car. Then I read your article, "How to Keep an Automatic Choke Automatic" [Jan., p. 193]. Being too lazy to clean all the parts, I just set the choke a few notches leaner and cleaned the air cleaner

Copyrighted material



For Good Pay, Interesting Work, Security

Learn Electric Appliance Repair

AT HOME IN SPARE TIME

Build a better future. Get into a field where there is important work and the security that comes from knowing a good trade. The electrical appliance repair business offers OPPORTUNITY FOR YOU. Every wired home today has an average of 8 electrical appliances. Up to 10 million new appliances are sold every year. Owners pay well to keep them in repair and enjoy the convenience they provide. That means there's a fast growing need for trained men.

Pick up $3, $4, $5 an Hour in Spare Time Starting Soon

Start soon to fix electric toasters, clocks, fans, vacuum cleaners, etc. for neighbors and friends. Spare time work done in your basement, garage, or spare room can earn you $3 to $5 an hour. See how easy it is to increase your earning power—how you can pay for this training many times over with spare time earnings.

Opportunities Increasing For Men Who Know This Profitable Trade

You may want to be your own boss so you can enjoy the profits of your business. Or you may want to qualify for the better job of Service Manager or Supervisor in an Appliance Servicenter. Or perhaps you want to supplement your income doing electrical appliance repairs in your spare time. Opportunity in this growing field is great. Send for free book and see what the Electrical Appliance field offers you!

Learn and Earn With This Appliance Tester You Get

This course includes the parts to build this sturdy portable appliance tester that helps you find electrical defects quickly and easily. You use it to learn and do actual electrical and appliance repair jobs. This multi-use tester helps you start making money soon after your training starts.

ACT NOW! Get Free Book And Sample Lesson

Actual lesson proves our method is clear, practical. Book gives facts about Electric Appliance opportunities and details of our training. Act now to make your future more secure.

Train Now for Greater Security Low Price—Easy Terms

Today's automatic electrical appliances need expert servicing. The man who knows a good trade like appliance repair has a secure future. Put your spare time to good use. Invest $2.50 down and $5.00 a month in a better future. Write Electrical Appliance Training, National Radio Institute, Dept. BE5, Washington 9, D.C.

MAIL COUPON TODAY

NATIONAL RADIO INSTITUTE
Dept. BE5, Washington 9, D. C.
Please send me Electrical Appliance Training Lesson and Book Free. (No salesman will call.)

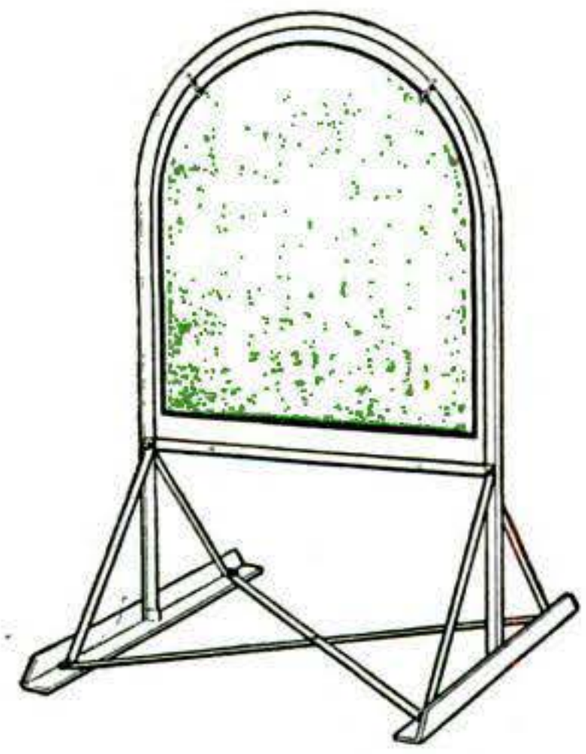
Name..... Age.....

Address.....

City..... Zone..... State.....

Copyrighted material

"Yes, Quaker State, please ...I want the best!"



Super-refined from 100% Pure Pennsylvania Grade Crude Oil, world's finest. Famous for performance, protection, economy! Try it!

QUAKER STATE OIL REFINING CORP., OIL CITY, PA.
Member Pennsylvania Grade Crude Oil Association

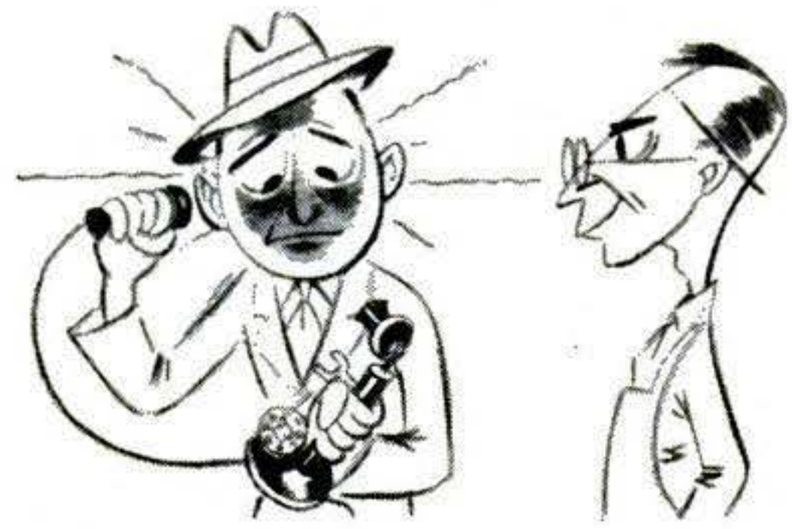
and now I get about 27 miles. I can hardly believe it. Let's have more useful information like this.

WILLIAM A. GREINER, Condon, Ore.

Tricking the Tricksters

In many stores in small towns like ours, the owners permit customers to use their telephones for free local calls. But some larcenous people sneak in expensive long-distance calls, then depart without paying the toll.

So a friend of mine simply removed the little tab that holds the phone's number. Now when the long-distance operator asks



her usual "What is your number, please?" the call-maker is stymied.

MRS. STANLEY CLARK, East Bradenton, Fla.

Parts Cleaner Was Patented

Your February issue has a description of a parts cleaner in the department, "Hints from the Model Garage." This piece of equipment is a patented article manufactured by the Gale-Martin Corp., 540 W. 24th St., New York City.

CHARLES WULSTEIN, New York

A Vote for Controversy

I get a bigger kick out of many controversies in your Letters column than I do out of the Sunday funnies. I particularly like to read the heated exchanges on the subject of automobiles.

I see these people every day—the guy with the two tons of horsepower, gadgets and chrome; the guy with the sports car which cost him four thousand skins and which he claims saves him dough on gas; the guy with the motorcycle who maintains that there is no other way to travel, and who rides with me in our car when it rains; and particularly the guy who claims that the way to save dough is to buy a car and keep it eight years, and is always the first in town to be driving the new model each year.

But I particularly admire the guy who

Copyrighted material

INVENTORS

Learn how to protect your invention. The U. S. Patent Laws provide that any new and useful art, machine, article of manufacture, or composition of matter, or any new and useful improvement thereof, may be patented if the act of invention is involved. Therefore, every inventor with a valuable invention should take advantage of the Patent Laws and proceed for patent protection in order to safeguard his rights.

A patent gives the inventor the exclusive right to prevent others from making, using, or selling the invention claimed in the patent for a period of seventeen years.

The Patent Laws were enacted for the benefit of the inventor to give him protection for the features of his invention which are patentable. These features must be properly and concisely set forth and claimed in a formal application for patent, in order to comply with the requirements of the Patent Laws. For that reason, unless the inventor is familiar with patent matters, he should engage a competent registered patent attorney or agent to represent him. We are registered to practice before the U. S. Patent Office and are prepared to serve you in the handling of your patent matters.

A specially prepared booklet entitled "Patent Guide for the Inventor", containing detailed information with respect to patent protection and procedure, together with a "Record of Invention" form will be promptly forwarded to you without obligation upon request.

CLARENCE A. O'BRIEN & HARVEY JACOBSON

Registered Patent Attorneys

52-E DISTRICT NATIONAL BUILDING
WASHINGTON 5, D. C.

Copyrighted material

never enters the arguments, who doesn't do his darnedest to show his tail lights to every other driver in town, and is kind to his family and his dog.

But don't list me as antiprogressive, please. I have automatic drive, turn signals and a radio in my car, and I like them. Who knows, some day I may develop a taste for air conditioning, windshield washers and even a hydraulic seat which will shuffle me all over the car at the touch of a button.

C. A. Rambow, c/o FPO, San Francisco

Mercury Mining Was Different Then

I read with interest the January article [p. 139] on the "Mysterious Boom in Mercury Mining." In 1918-19 it was far different. I saw flasks of mercury, worth $75 each, stacked like cordwood on a Pennsylvania hillside, for fulminate of mercury. This was used in caps and detonators.

Those stacks were fairly safe. It would have been hard for anyone to get away with a flask under each arm. Loyal countrymen would have spotted a thief or a stranger very quickly.

R. E. Bowman, Blacksburg, Va.

By Any Other Name, It Still Sticks

Having just read your excellent article on installing plastic counter tops [Feb., p. 110], I am writing to compliment you. There is one point, however, that I would like to draw to your attention. You say, "Spread gunk on the panel back and plywood subsurface."

"Gunk" is the trademark for a degreaser

compound. I know that this was not intentional, but it struck me as funny.

Jack S. Southcatt, London, Ont.

Hereafter we'll stick with stickum, goo, glop or goop.

Lighted Level Easy to Make—or Buy

Like the gentleman from Minnesota, I too wanted an illuminated level for working in

Copyrighted material

INVENTORS

If you believe that you have an invention, you should find out how to protect it. The first step is to have a search made of the prior pertinent U. S. patents. If a report on this search indicates that the invention appears patentable you can apply for a patent, and the specifications and claims should be prepared.

The firm of McMorrow, Berman & Davidson, with offices in Washington, D. C., is qualified to take the necessary steps for you. We can make a preliminary search on your invention, advise you whether we think it can be patented, and prepare your application for patent.

Unless you are fully familiar with the U. S. Patent Laws, we recommend that you engage the services of a Registered Patent Attorney to protect your interests. The patent laws are *your* laws. A patent gives you the right to prevent others from making, using or selling the invention claimed in your patent for a period of 17 years.

Use these patent laws for your protection. Investigate whether your invention can be patented. If you have what you believe to be an invention, we suggest that you have this firm make a search for you.

Send for a copy of our Patent Booklet entitled "How To Protect Your Invention," containing information about patent protection and patent procedure. Along with this we will also send you an "Invention Record" form, for your use in writing down and sketching details of your invention. We will mail them promptly. No obligation. They are yours for the asking.

McMORROW, BERMAN & DAVIDSON

Registered Patent Attorneys

PATENTS • COPYRIGHTS • PATENTS

142-D VICTOR BUILDING, WASHINGTON 1, D. C.

Copyrighted material

dark corners ["I'd Like to See Them Make," Feb., p. 153]. So I bored a ⅝" hole in my wood level and slipped in a dime-store "pen" flashlight. Cotton wadding wedges it tight.

A. J. WAIGHT, Hornell, N. Y.

We are distributors for just such an item. . . . Our Luma-Level comes complete with light and batteries.

C. E. WOODEND, Arn-Wood Co., Denver

Good Question

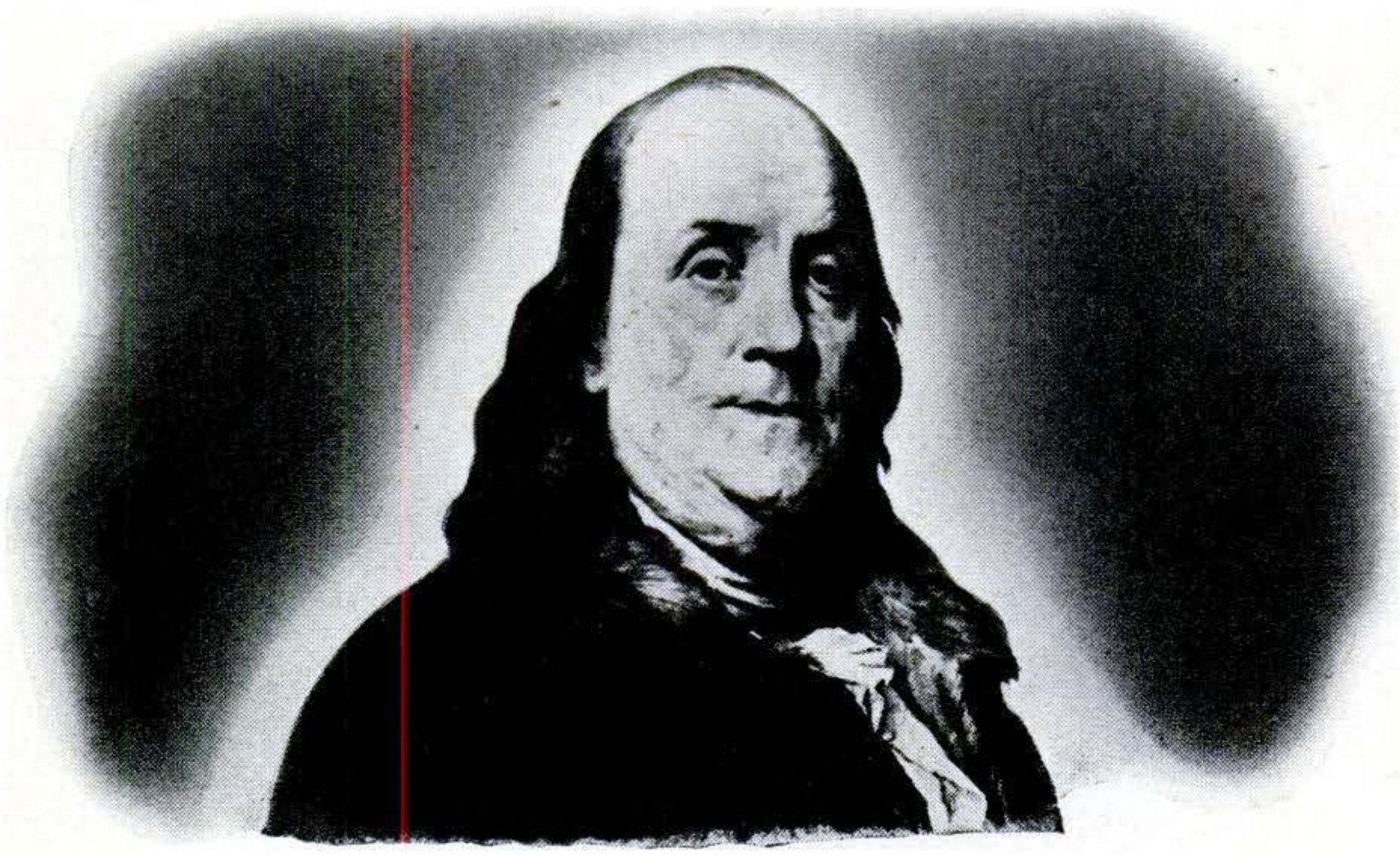
Re: "How I Fly the Pogo Plane" [Feb. PSM, p. 122].

I would like to ask one question. How would you make a crash landing? It would be pretty hard to pancake, wouldn't it?

CHARLES N. REINSEL, Clarion, Pa.

If the engine failed, the Pogo pilot would have to bail out rather than try to crash-land.

WHAT SECRET POWER DID THIS MAN POSSESS?



BENJAMIN FRANKLIN (A Rosicrucian)

WHY was this man great? How does anyone—man or woman—achieve greatness? Is it not by mastery of the powers within ourselves?

Know the mysterious world within you! Attune yourself to the wisdom of the ages! Grasp the inner power of your mind! Learn the secrets of a full and peaceful life! Benjamin Franklin—like many other learned and great men and women—was a Rosicrucian. The Rosicrucians (NOT a religious organization) first came to America in 1694. Today, headquarters of the Rosicrucians send over seven million pieces of mail annually to all parts of the world.

The **Rosicrucians**
SAN JOSE (AMORC) CALIFORNIA

THIS BOOK FREE!
Write for YOUR FREE COPY of "The Mastery of Life"—TODAY. No obligation. No salesmen. A non-profit organization. Address: Scribe M.N.H.

SEND THIS COUPON

Scribe M.N.H.
The ROSICRUCIANS
(AMORC)
San Jose, California

Please send me the *free* book, *The Mastery of Life,* which explains how I may learn to use my faculties and powers of mind.

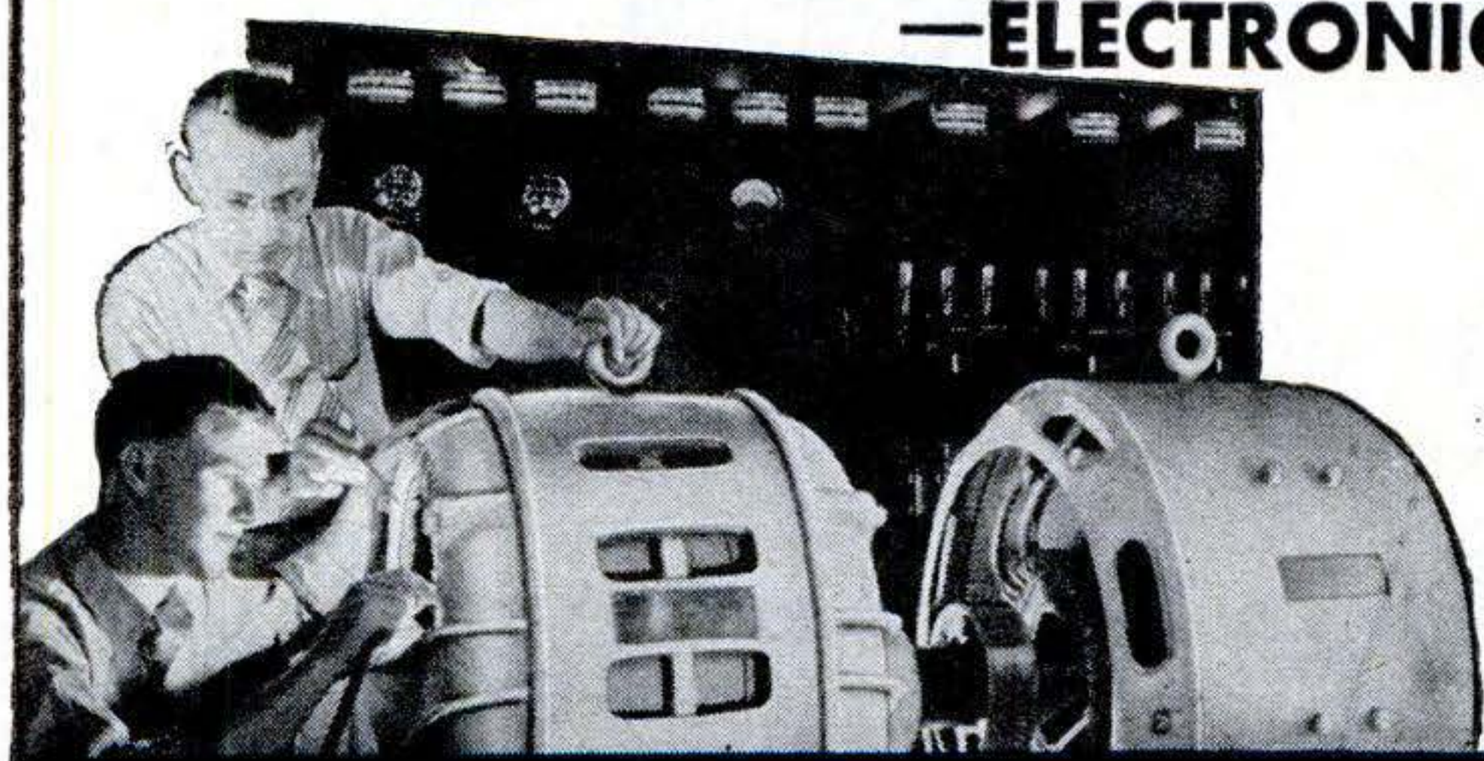
NAME_____
ADDRESS_____
CITY_____
ZONE_____ STATE_____

Copyrighted material

THESE MEN ARE GETTING PRACTICAL TRAINING

IN ELECTRICITY —ELECTRONICS

On Real:



A.C. and D.C. MOTORS
GENERATORS
SWITCHBOARDS
CONTROLLERS
WIRING JOBS
APPLIANCES
ELECTRONIC UNITS

(Shown at left – Instructor explaining operation and testing of a large Motor Generator in our A.C. Department.)

AND TELEVISION-RADIO

On Real:

TELEVISION SETS
RADIO RECEIVERS
F.M.
(Frequency Modulation)
ELECTRONICS
RECORD CHANGERS
AUTO RADIOS
PUBLIC ADDRESS Systems

(Right—Instructor helping students check the wiring and trace circuits of television receivers.)

Train in the great SHOPS of COYNE

Largest, Oldest, Best Equipped School Of Its Kind In The U. S.

Whether 17 or up to 45 years of age, prepare for your future now. Don't be satisfied with a "No Future" job. Train the Coyne way for a better job *in a field that offers a world of opportunities in the years ahead.*

FINANCE PLAN Enroll now, pay most of tuition later. Part-time employment service while training, if needed.

WE TRAIN YOU IN CHICAGO. At Coyne you learn on real, full-size equipment. Trained instructors show you how, then you do practical jobs yourself. No previous experience or advanced education needed.

CLIP COUPON NOW for big new illustrated Coyne book "Guide to Careers in ELECTRICITY and TELEVISION-RADIO". No obligation; *no salesman will call.* Get vital facts now!

B. W. COOKE, Pres. **COYNE ELECTRICAL SCHOOL** FOUNDED 1899

A TECHNICAL TRADE INSTITUTE CHARTERED NOT FOR PROFIT
500 S. PAULINA ST., CHICAGO, Dept. 55-73H

ELECTRICITY ★ RADIO ★ TELEVISION ★ REFRIGERATION ★ ELECTRONICS

Mail Coupon for Big Free Book

APPROVED FOR VETERANS

B. W. COOKE, President
COYNE ELECTRICAL SCHOOL
500 S. Paulina St., Chicago 12, Ill. Dept. 55-73H

Send BIG FREE book and details of your training offer. This does not obligate me and no salesman will call. I am interested in:

☐ ELECTRICITY ☐ TELEVISION-RADIO

NAME .....

ADDRESS.....

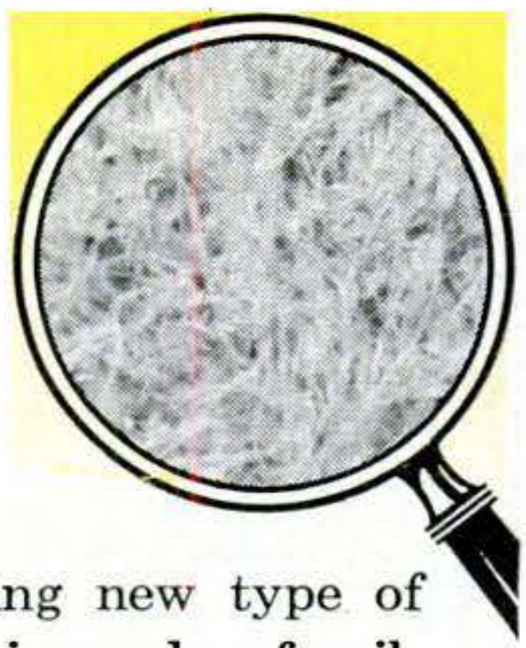
CITY.....STATE.....

Copyrighted material

Now you can have clean motor oil from filter change to filter change*

When you replace Hastings Cartridges as normally recommended

The reason is DENSITE!



Densite—an amazing new type of filtering material—is made of millions of selected raw cotton fibres, pressure packed so oil must flow through countless tiny openings, pass many surfaces of fibres. The most microscopic abrasives cling to these fibres—and stay there!

Next time you change oil—change your filter cartridge. Ask for Hastings and have clean motor oil *all the time!*

* As proven by tests conducted in accordance with U. S. Bureau of Standards procedure.

HASTINGS MANUFACTURING CO.
HASTINGS, MICHIGAN

HASTINGS
OIL FILTER CARTRIDGES with DENSITE

MODERN LAWN MOWER SHARPENER

COMPARE BEFORE YOU BUY

Write for free booklet 11R

Start your own business—increase your income

Sharpens any mower in ten to twenty minutes. Handles complete assembly of all reel types including 36 in. power mowers. Handle, wheels, roller, and engine are not removed.

Oil remains in engine while sharpening. Bed knife sharpened in same centers — no attachments needed.

$263.00 F.O.B. PASADENA

MODERN MFG. CO.
160 N. FAIR OAKS, PASADENA, CALIF.

CABINETMAKING

Low Cost Home Craft Course Now Available

Make money. Become a skilled woodworker. Interstate's new woodworking course tells and shows how to turn out hundreds of professionally constructed and finished wood projects with hand and power tools. Twenty-two profusely illustrated manuals. Over 1,000 pages. Over 75 projects. Written by expert instructors. The *only* complete course available today! Get full information without obligation...today.

Write for FREE Booklet

INTERSTATE TRAINING SERVICE
SCHOOL OF WOODWORKING
DEPT. F-2-E PORTLAND 13, OREGON

HOLLYWOOD ANGELS, INC.

COMMON STOCK

The Company will employ its funds in diversified entertainment enterprises connected with TELEVISION and BROADWAY SHOWS.

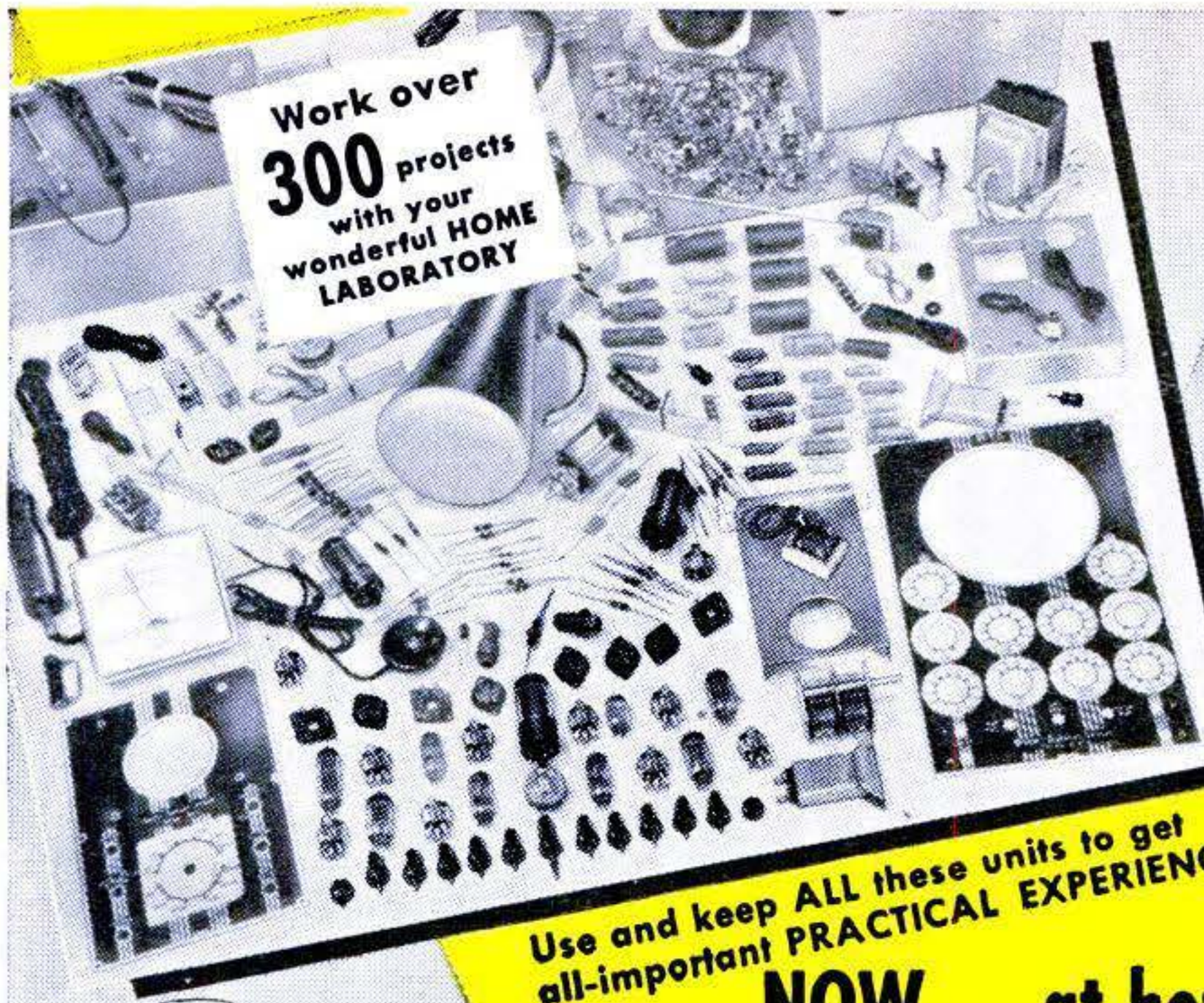
Price 50¢ a share

HOLLYWOOD ANGELS, INC. *Dept. PS-5*
29 West 65th St., N.Y. 23, N. Y.
TRafalgar 4-1815

Send Free Offering Circular without cost.

*Name*_____
*Address*_____
*City*_____ *Zone*_____
*State*_____ *Phone No.*_____

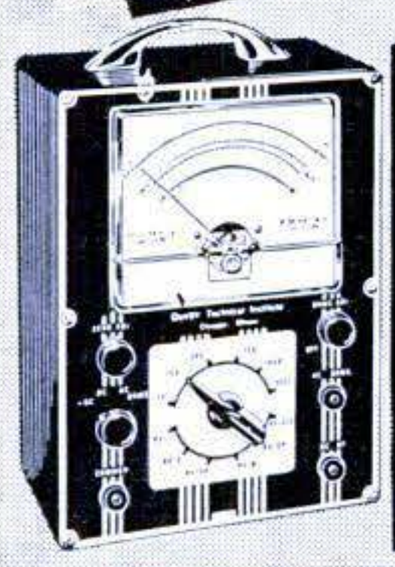
Copyrighted material



Use and keep ALL these units to get all-important PRACTICAL EXPERIENCE

NOW... at home... get D.T.I.'s amazingly effective *NEW* training in

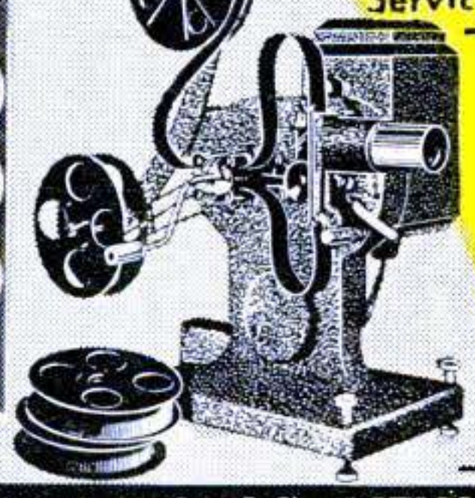
TELEVISION



NEW! Build and keep D. T. I.'s new VACUUM TUBE VOLTMETER... one of the most useful of all test instruments.

RADIO-ELECTRONICS! Nothing else like it for providing real LABORATORY-TYPE training at home. Get the kind of thorough, practical experience YOU NEED for the kind of progress YOU WANT in today's tremendous field of Television, Radio and Electronics. Qualify yourself for real money . . . interesting work . . . a wonderfully promising future. And when you finish, D.T.I.'s active Employment Service HELPS YOU GET STARTED! Or open your own profitable Television-Radio Service Business.

ABOVE: Also build and keep this quality Oscilloscope—almost a "must" for Television servicing.



Exclusive HOME MOVIES help you grasp important points FASTER . . . EASIER . . . BETTER. A tremendous advantage!

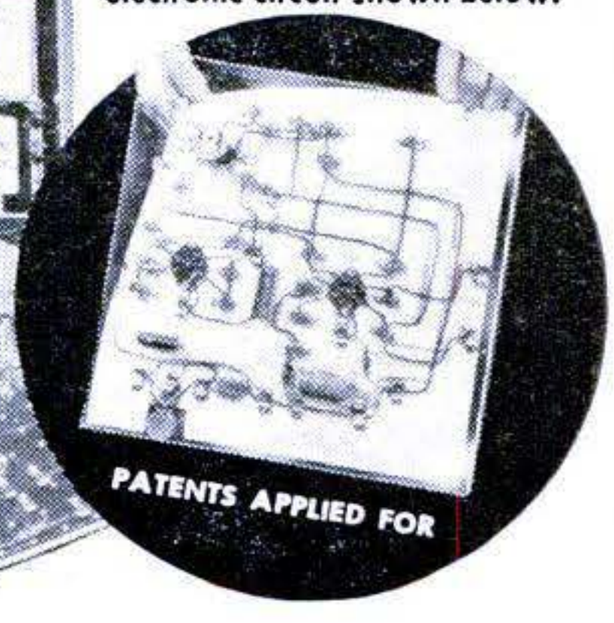
THOUSANDS OF SUCCESSFUL GRADUATES

WHY has D.T.I. become one of the largest training organizations of its kind? Because it provides EVERY MAJOR HOME TRAINING AID to help make the subject EASIER to learn . . . EASIER to remember—the kind of training so helpful for REAL PROGRESS. Students get thorough, up-to-date, practical training that TAKES ADVANTAGE of new and improved training developments. Study the ADVANTAGES shown on this page. Think what they can mean to YOU . . . to YOUR FUTURE! Or come to D.T.I.'s big Training Laboratories in Chicago. MAIL COUPON TODAY for complete facts—including valuable publication, "89 Ways to Earn Money in Television-Radio-Electronics." Also, valuable information for men subject to MILITARY SERVICE.

"One of America's Foremost Television Training Centers"

Remarkable NEW *Styrene* SPEED-O-LAB

Insert pictorial diagram on transparent styrene base. (See insert.) Mount parts to follow pattern—using handy "snap in" fasteners. Eliminates wiring errors. Tops for speedy circuit changes . . . for providing maximum circuit experience in minimum time. Build and operate scores of interesting projects — such as the electronic circuit shown below.



DeVRY Technical Institute
CHICAGO 41, ILLINOIS
Formerly DeFOREST'S TRAINING, INC.

MAIL COUPON TODAY

DeVRY TECHNICAL INSTITUTE
4141 Belmont Ave., Chicago 41, Ill. Dept. PS-5-L

I would like complete facts including "89 Ways to Earn Money in Television-Radio-Electronics."

Name _____ Age _____

Street _____ Apt. _____

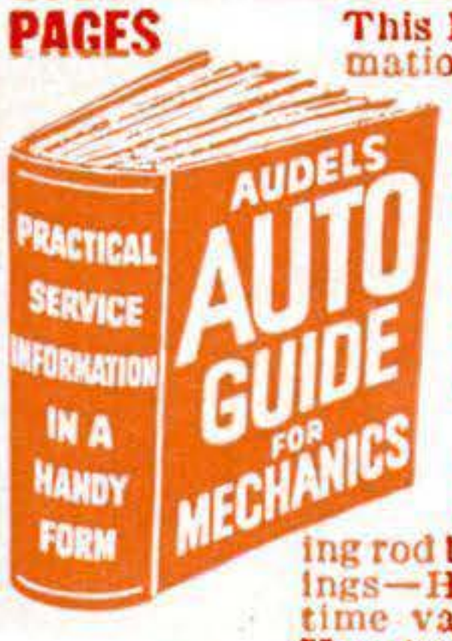
City _____ Zone _____ State _____

1 D.T.I.'s training is available in Canada.

Copyrighted material

WHAT ALL AUTO MECHANICS WANT TO KNOW

1664 PAGES



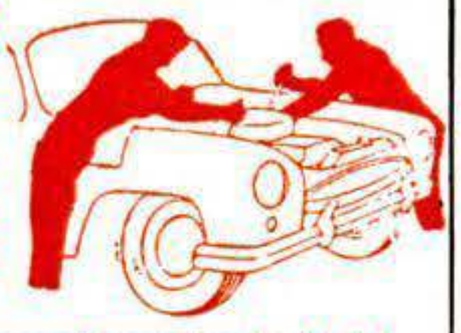
This Big Practical Book gives full information with working diagrams covering the principles, construction, ignition, service and repair of modern cars, trucks and buses.

Diesel Engines, Hydramatic & Fluid Drives Fully Explained.

A complete Guide of 1664 pages, with over 1500 illustrations showing inside views of working parts, with instructions for service jobs.

IT PAYS TO KNOW

How to fit pistons—How to locate engine knocks. How to fit connecting rod bearings—How to service main bearings—How to recondition valves—How to time valves—How to adjust fan belts—How to adjust carburetors and chokes. How to rebuild a clutch—How to service automatic transmissions—How to service brakes—How to adjust steering gear—How to cope with ignition troubles—How to service distributors—How to time ignition—How to "tune up" an engine.



$4 COMPLETE • PAY $1 A MO.
TO GET THIS ASSISTANCE FOR YOURSELF SIMPLY FILL IN AND MAIL COUPON TODAY.

Step up your own skill with the facts and figures of your trade. Audels Mechanics Guides contain Practical Inside Trade Information in a Handy Form. Fully illustrated and Easy to Understand. Highly Endorsed. Check the book you want for 7 DAYS FREE EXAMINATION. Send No Money. Nothing to pay postman.

MAIL ORDER

AUDEL, Publishers, 49 W. 23 St., NEW YORK 10, N. Y.

Please send me postpaid for FREE EXAMINATION books marked (x) below. If I decide to keep them I agree to mail $1 in 7 Days on each book or set ordered and further mail $1 monthly on each book or set until I have paid price, otherwise I will return them.

- ☐ AUTOMOBILE MECHANICS GUIDE, 1664 Pages. $4
- ☐ TRUCK & TRACTOR GUIDE, 1299 Pages . . . 4
- ☐ DIESEL ENGINE MANUAL, 575 Pages 2
- ☐ MACHINISTS HANDY BOOK, 1650 Pages . . . 4
- ☐ WELDERS GUIDE, 400 Pages 1
- ☐ BLUE PRINT READING, 416 Pages 2
- ☐ MATHEMATICS & CALCULATIONS, 700 Pages. 2
- ☐ SHEET METAL PATTERN LAYOUTS, 1100 Pages 4
- ☐ SHEET METAL WORKERS HANDY BOOK, 388 Pgs. 1
- ☐ MECHANICAL DRAWING GUIDE, 160 Pages . . 1
- ☐ MECHANICAL DRAWING & DESIGN, 480 Pages 2
- ☐ AIRCRAFT WORKER, 240 Pages 1
- ☐ TELEVISION SERVICE MANUAL, 434 Pages. . 2
- ☐ RADIOMANS GUIDE, 1040 Pages 4
- ☐ ELECTRONIC DEVICES, 216 Pages 2
- ☐ ELECTRIC MOTOR GUIDE, 1000 Pages 4
- ☐ WIRING DIAGRAMS (Light & Power), 272 Pgs. 1
- ☐ ELECTRICIANS EXAMINATIONS, 250 Pages. . 1
- ☐ ELECTRIC POWER CALCULATIONS, 425 Pages. 2
- ☐ HANDY BOOK OF ELECTRICITY, 1440 Pages. . 4
- ☐ ELECTRIC DICTIONARY, 9000 Terms 2
- ☐ ELECTRIC LIBRARY, 7000 Pages (12 Book Set) 18
- ☐ SHIPFITTERS HANDY BOOK, 250 Pages . . . 1
- ☐ REFRIGERATION & Air Conditioning, 1280 Pgs. 4
- ☐ MILLWRIGHTS & MECHANICS GUIDE, 1200 Pgs. 4
- ☐ POWER PLANT ENGINEERS GUIDE, 1500 Pages 4
- ☐ ENGINEERS & FIREMANS EXAMS, 525 Pages . 1
- ☐ PUMPS, Hydraulics & Air Compressors, 1658 Pgs. 4
- ☐ OPERATING ENGINEERS LIBRARY (3 Books) . 9
- ☐ MECHANICAL DICTIONARY, 950 Pages 4
- ☐ GARDENERS & GROWERS GUIDES (4 Book Set) 6
- ☐ CARPENTERS & BUILDERS GUIDES (4 Book Set) 6
- ☐ PLUMBERS & Steamfitters Guides (4 Book Set) 6
- ☐ MASONS AND BUILDERS GUIDES (4 Book Set) 6
- ☐ PAINTERS & DECORATORS MANUAL, 450 Pgs. 2
- ☐ HOUSE HEATING GUIDE, 1000 Pages 4
- ☐ OIL BURNER GUIDE, 384 Pages 1
- ☐ HOME APPLIANCE SERVICE GUIDE, 800 Pages 4

Check NOW!

You Can Look Over Any Guide In Your Own Home

—

Start the Easy Payments If Satisfied

MAIL THIS TODAY

Name _____

Address _____

Occupation _____

Employed by _____

S5

more jobs than graduates

ENGINEERS
engineering opportunity! If you
interesting work in these fi
pay you to write Box D
including a complete history
and education.

Demand for our engineering graduates exceeds supply. *Effective placement service!* Study in this world-famed college . . . established 1884. *Approved for veterans.*

Bach. Sc. degree in 27 months

Bachelor of Science in Mechanical, Civil, Electrical, Chemical, Aeronautical, Radio (T.V., Electronics), Administrative Engineering; Business Administration and Accounting. Also 36-weeks certificate course in Drafting. *Intensive program: technical fundamentals accented: comprehensive courses.*
Small classes: personalized instruction. For earnest, mature students whose time and budget require accelerated courses and *modest costs.* Preparatory courses. *Beautiful campus* in friendly college town. Well-equipped, new and modernized buildings and labs. Enter June, Sept., Jan., March. *Write Jean McCarthy, Director of Admissions, for Catalog, View Book and "Your Career in Engineering or Commerce."*

TRI-STATE COLLEGE
555 College Avenue Angola, Indiana

Learn to MOUNT BIRDS

Tan SKINS, make up FURS

Be a Taxidermist. *Double your hunting fun.* We teach you **at Home.** Mount **Birds, Animals, Fish, Heads,** common specimens. **Fun and profits.** Decorate home and den **MAKE MONEY.** Mount game, tan for others. Big profits in spare time. **WRITE TODAY.**

100 game pictures in FREE BOOK
Hunters, get your copy. It's **Now Free.** Send post card. State your **AGE.**

FREE BOOK

NORTHWESTERN SCHOOL OF TAXIDERMY
Dept. 2605 Omaha, Nebraska

DR GRABOW PIPES

SAVE UP TO 50% ON FAMOUS ITALIAN ACCORDIONS

Buy direct from America's leading distributor. Offers Students, Teachers and Professionals SPECIAL DISCOUNTS. Send NOW for FREE Literature and lowest wholesale prices. Easy Terms. Trade-ins accepted. Write today.

5 DAY FREE TRIAL

ACCORDION MANUFACTURERS & WHOLESALERS OUTLET
DEPT. P-55 2003 W. CHICAGO AVE., CHICAGO 22, ILL.

High School at Home

MANY FINISH IN 2 YEARS

No classes. No time wasted going to and from school. Progress as fast as your time and abilities permit. Standard H. S. texts supplied. Thousands enroll each year in this 58 year-old school. Send for FREE descriptive booklet.

AMERICAN SCHOOL, Dept. H546
Drexel at 58th St., Chicago 37, Ill.
Without obligation, please send FREE descriptive booklet.

Name .....

Address .....

Canadian Residents: Complete Canadian Course Available. Write American School, 1610 Sherbrooke St., West, Montreal.

Copyrighted material

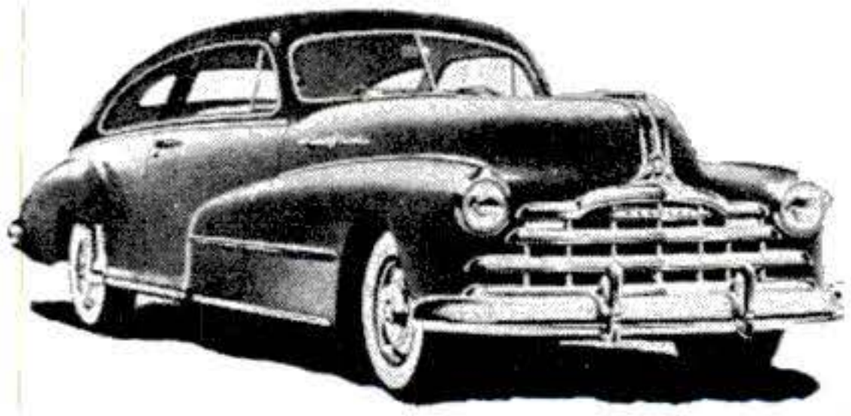
RESTORE YOUR CAR PERFORMANCE

CAR LOST IT'S PEP? BURNING OIL?

Amazing New Method Lets You Restore Car Performance In a Few Minutes. No Mechanic Needed—You Pay Nothing For Gadgets or Mechanical Repairs.

Cars over 3 years old that have gone over 25-30.000 miles are not what they used to be. Your car probably uses too much oil, lacks power, is hard to start, is slow on the pickup, uses too much gasoline. You've probably guessed the reason. The pistons just don't fit the cylinders like they used to—Friction has worn the cylinder walls and pistons so that the rings can no longer fully seal. You are losing compression and power each time a cylinder fires. Gas is leaking into the crankcase oil to undermine its lubricating powers, oil is passing up into the cylinders to be burned into performance killing carbon deposits.

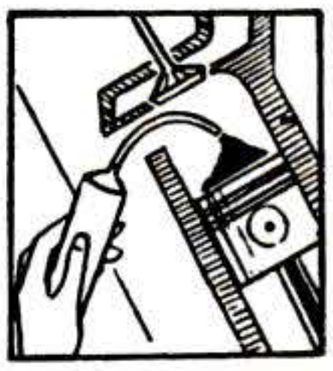
Regularly $4.45 *only* 2.98 Regular Size



SAVE UP TO $150

Now, if this is the situation you are in for an overhaul job costing somewhere between $50 and $150 UNLESS—Yes, there is an alternative. You can fix that leaky engine in a few minutes, without buying a single part or gadget, and at a cost so low you'll hardly notice it. You just squeeze a little PEPGO Ring Seal into each cylinder through the spark plug openings, replace the plugs and idle the engine and you are finished.

PEPGO coats the cylinder walls and pistons with a unique mineral suspension which has this truly amazing power. When subjected to the high heat of the engine this mineral expands up to 30 times its original volume to fill those gaps between the rings and cylinder walls with a pliable resilient and lubricating seal that holds compression, stops oil pumping, and gas blowing. Gone is piston slapping, engine knocks. Compression is restored and with it comes more pep and power, easier starting, better mileage and lower oil consumption.



WORN OUT ENGINES RUN LIKE NEW

TEST #1

A 1945 "Dodge" 6 cylinder truck had been driven over 100,000 miles without overhaul and was using over a quart of oil every 100 miles. Rated compression of engine when new was 110 lbs. After one PEPGO RING SEAL treatment average cylinder compression now was raised over 40% from 76 to 107 lbs. Oil consumption was greatly reduced and gasoline mileage increased.

Compression Readings—1945 Dodge Truck

	Cylinder 1	Cylinder 2	Cylinder 3	Cylinder 4	Cylinder 5	Cylinder 6
Before	87 lbs.	75 lbs.	75 lbs.	60 lbs.	75 lbs.	85 lbs.
After	100 lbs.	110 lbs.	115 lbs.	95 lbs.	105 lbs.	118 lbs.

TEST #2

Engine Compression Completely Restored in 1948 Pontiac

A 1948 Pontiac "8" had been driven over 77,000 miles without overhaul and was consuming a quart of oil every 200 to 300 miles. Rated compression for this engine when new was 120 lbs.

After one PEPGO RING SEAL Treatment average cylinder compression was increased from 107 lbs. to 120 lbs. or equal to factory standards when new. The car now exhibited exceptional pep and pickup on mountains. Oil consumption was more than cut in half. Gasoline mileage was increased more than 20%.

Compression Readings—1948 Pontiac

	Cyl. 1	Cyl. 2	Cyl. 3	Cyl. 4	Cyl. 5	Cyl. 6	Cyl. 7	Cyl. 8
Before	105 lbs	95 lbs	107 lbs	120 lbs	110 lbs	115 lbs	95 lbs	116 lbs
After	125 lbs	120 lbs	120 lbs	125 lbs	122 lbs	120 lbs	115 lbs	123 lbs

NOW ONLY 2.98

This is the testimony of the experts. Now read what just one of the many, many satisfied users have said.

GET UP TO 50% MORE POWER

No labor cost—nothing else to buy

"PEPGO RING SEAL WORTH MANY TIMES THE PRICE."

"I cannot tell you how pleased I am with the results Pepgo Ring Seal has given in my 1947 Cadillac. Previous to treatment my car used one quart of oil every 250 miles. Now the car uses less than a quart of oil every thousand miles. I have also noticed a real increase in power and gas mileage since the treatment. I have now driven over 3000 miles since the Pepgo Ring Seal application and continue to get the same good results. Apart from the savings in oil and gas I found Pepgo Ring Seal worth many times the price because it restored the original power of my car. Please send me two new tubes of Pepgo Ring Seal for use in my 1950 Oldsmobile." C.S.R., Chestnut Hill, Pa.

YOU RISK NOTHING

Just prove it for yourself at our risk. PEPGO Ring Seal is guaranteed. It cannot harm the finest car in any way. It can only improve and protect your motor. (Of course it will not correct mechanically defective parts.) Try PEPGO Ring Seal in your engine for a full 30 days. If you are not satisfied that everything we have led you to expect is absolutely true—just return the empty tube and we will refund the full purchase price.

30 DAY FREE TRIAL—SEND NO MONEY

You risk nothing. Just fill in the coupon below and we will rush your PEPGO RING SEAL kit together with full instructions anyone can easily follow by return mail. Just a few easy, pleasurable minutes later your car will begin to operate in a manner that will truly amaze you. Run your car after the PEPGO treatment for a full 30 days. If you are not completely delighted with the results, if your car doesn't run quieter, smoother, with more pep and pickup, less oil and gas consumption then just return the empty tubes for prompt refund of the full purchase price. We stand behind the product. We guarantee—fully satisfactory results, or your money back. 6 cylinder cars require one tube—only $2.98, 8 cylinder cars 2 tubes—only $4.98. This is a special offer. PEPGO sold before for $4.45 per tube. So rush coupon today.

MODERN MART, Dept. P-770
35 Wilbur St., Lynbrook, N. Y.

Rush.....tubes of Pepgo Ring Seal together with kit and easy instructions.

☐ 6 Cylinder cars (1 tube) $2.98 ☐ 8 Cylinder car (2 tubes) $4.98

☐ Send C.O.D. I will pay postman on delivery plus a few cents postage. If I do not see immediate improvement, if after even 30 days' use I am not completely satisfied that I have gotten improvd Pep, pickup, performance and economy for my car. I may return the empty tubes for prompt refund of the full purchase price.

☐ I enclose payment. Modern Mart will pay postage. Same Money Back Guarantee.

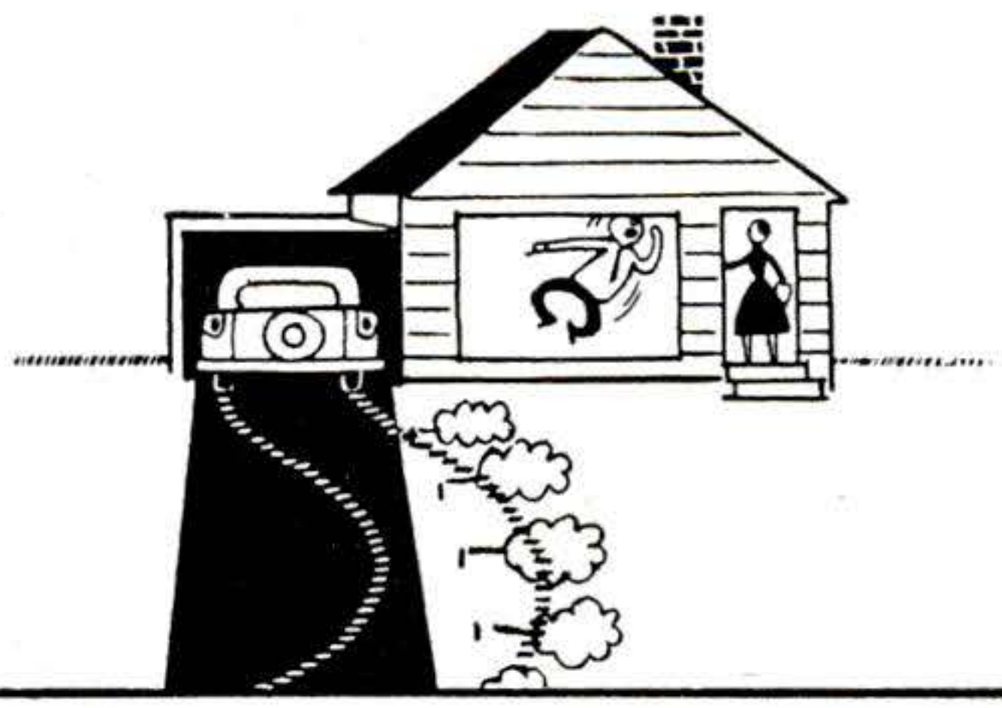
Name .....

Address .....

City ..... State .....

Copyrighted material

Looking for Something?



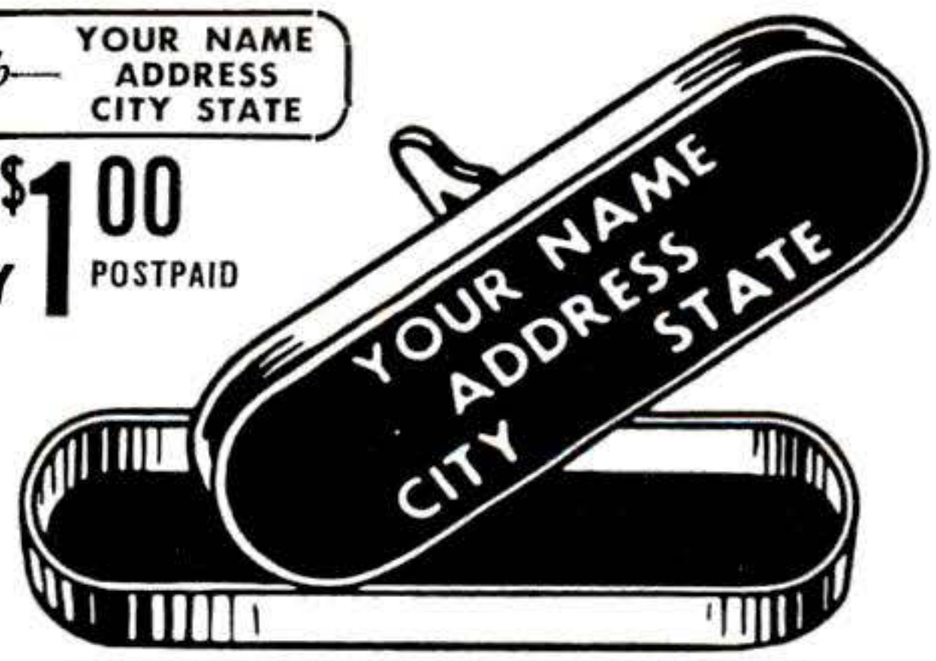
FROM CEMENT TO LINOLEUM
WHATEVER YOU NEED

Find It Fast
In The
'Yellow Pages'

PERSONAL POCKET STAMP

With— YOUR NAME
ADDRESS
CITY STATE

ONLY $1.00 POSTPAID



(OR ANY WORDING ON 3 LINES)

This handy 3-Line Pocket Stamp in a nickel plated metal case with inked pad and collapsible handle complete in one unit. Ready for use. SIZE 2"x5/8".

IDEAL FOR STAMPING YOUR PERSONAL EFFECTS BOOKS—PAPERS—CHECKS—ETC.

Send $1.00 Check or Money Order. No C.O.Ds.
4th line add 35c extra

A. C. M. Co., Dept. P S
20-11 Steinway Street, L. I. C. 5, N. Y.

SHORTHAND in 6 WEEKS

Famous SPEEDWRITING shorthand. 120 words per minute. No symbols; no machines; uses ABC's. Easiest to learn, write and transcribe. Lowest cost. 250,000 taught by mail. For business and Civil Service. Typing available. 32nd year. Write for FREE booklet to: **SCHOOL OF**

Speedwriting®
Dept. 2605-5, 55 W. 42 St., New York 36

OWN YOUR OWN BUSINESS!

Repair electrical appliances of friends and neighbors. Service electrical equipment in factories, stores, etc.
New Shop Method home training system. Rush name today for FREE BOOK and special form for getting Electronic kit., illustrated instructions on new easy payment plan. Pay us later with your EARNINGS WHILE LEARNING.

CHRISTY TRADES SCHOOL
4804 N. Kedzie Ave., Dept. D-5101, Chicago 25.

INVESTIGATOR TRAINING

Experience unnecessary.
Many opportunities.
Send for Free particulars.
Free credentials.

EXCHANGE SECRET SERVICE SYSTEM
4554 Broadway Chicago 40, Ill.

— — — — MAIL COUPON FOR QUICK ACTION! — — — —

Exchange Secret Service System
4554 Broadway, Chicago 40, Ill.

Without cost or obligation please mail Free particulars

Name.....

Address.....RFD or Zone.....

City.....State.....

Copyrighted material

GET IN ON THE BOOM!

L. C. Lane, B.S., M.A.
President, Radio-Television Training Association. Executive Director, Pierce School of Radio & Television.

TRAIN FOR A HIGH PAYING JOB AS A TELEVISION TECHNICIAN

NO PREVIOUS EXPERIENCE NEEDED — study AT HOME in your SPARE TIME

Next to the atom and hydrogen bombs, the biggest noise being made today is by the booming radio-television-electronics industry.

Now, while the boom is on in full force, is the time for you to think about how you can share in the high pay and good job security that this ever-expanding field offers to trained technicians.

Just figure it out for yourself. There are more than 400 television broadcasting stations operating right now and hundreds more to be built; more than 30 million sets in the country and sales increasing daily. By 1955 moderately priced color television sets will be on the market and the color stampede will be on.

All these facts mean that good jobs will be looking for good men. You can be one of those men if you take advantage of my training now — the same training that has already prepared hundreds of men for successful careers in the radio-television-electronics field.

No experience necessary! You learn by practicing with professional equipment I send you. Many of my graduates who now hold down good paying technician jobs started with only grammar school training.

RADIO-FM-TV TECHNICIAN TRAINING

If you have previous Armed Forces or civilian radio experience you can finish your training several months earlier by taking my FM-TV Technician Course. Train at home with kits of parts, plus equipment to build BIG SCREEN TV RECEIVER. ALL FURNISHED AT NO EXTRA COST!

FM-TV TECHNICIAN TRAINING

After you finish your home study training in the Radio-FM-TV Technician Course or the FM-TV Technician Course you get two weeks, 50 hours, of intensive Laboratory work on modern electronic equipment at our associate school in New York City, Pierce School of Radio & Television.
THIS EXTRA TRAINING IS YOURS AT NO EXTRA COST WHATSOEVER. My courses are complete without this extra training, however. It is just an added opportunity for review and practice.

EXTRA LABORATORY TRAINING IN NEW YORK CITY AT NO EXTRA COST!

VETERANS!

My School fully approved to train veterans under new Korean G.I. Bill. Write discharge date on coupon.

LEARN BY DOING As part of your training, I give you enough equipment to set up your own home laboratory and prepare for a BETTER PAY TV job. You build and keep a professional GIANT SCREEN TV RECEIVER complete with big picture tube (designed and engineered to take any size up to 21-inch) . . . also a Super-Het Radio Receiver, RF Signal Generator, Combination Voltmeter-Ammeter-Ohmmeter, C-W Telephone Transmitter, Public Address System, AC-DC Power Supply. Everything supplied, including all tubes.

EARN WHILE YOU LEARN Almost from the very start you can earn extra money while learning by repairing radio-TV sets for friends and neighbors. Many of my students earn up to $25 a week . . . pay for their entire training from spare time earnings . . . start their own profitable service business.

FREE FCC COACHING COURSE Qualifies you for Higher Pay! Given to all my students AT NO EXTRA COST. Helps you qualify for the TOP JOBS in Radio-TV that demand an FCC license! Full training and preparation at home for your FCC license.

YOU GET THESE FOUR *free!*

MAIL THIS COUPON TODAY!
no salesman will call!

Mr. Leonard C. Lane, President — Dept. P-5
RADIO-TELEVISION TRAINING ASSOCIATION
52 East 19th Street, New York 3, N. Y.

Dear Mr. Lane: Mail me your NEW FREE BOOK, FREE SAMPLE LESSON, and FREE aids that will show me how I can make BIG MONEY IN TELEVISION. I understand I am under no obligation and no salesman will call.

(PLEASE PRINT PLAINLY)

Name_____ Age____

Address_____

City_____ Zone____ State____

I AM INTERESTED IN:

- ☐ Radio-FM-TV Technician Course
- ☐ FM-TV Technician Course
- ☐ TV Cameraman & Studio Technician Course

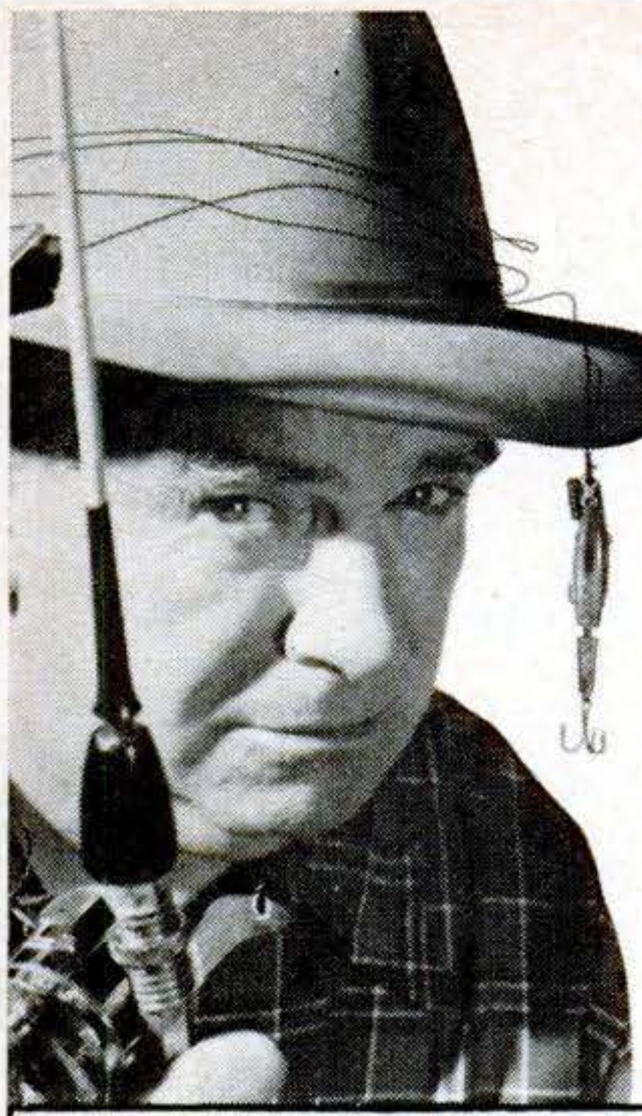
VETERANS! Write discharge date _____

Radio Television Training Association

52 EAST 19th STREET • NEW YORK 3, N. Y.

Licensed by the State of New York • Approved for Veteran Training

Copyrighted material



Learn a lesson from a rusty reel!

Keep your car's engine clean and free-running to UNLOCK HORSEPOWER

Few men will let a reel rust or corrode to where it causes backlash. Yet many let the same thing happen to their car engines. For, like rust on a reel, engine deposits cause friction that binds vital parts—steals power, wastes gasoline, promotes costly wear.

Pennzoil with Z-7 disperses these harmful contaminants, lets THE *Tough-Film*® lubricate completely—*unlocking* horsepower for instant response, better gasoline mileage.

For summer, change to Pennzoil with Z-7 and *feel* the difference!

Sound your Z for the LONG QUART

NOW with Z-7 the POWER INGREDIENT

Switch now at this sign . . .

BETTER DEALERS IN EVERY STATE FEATURE PENNZOIL® PRODUCTS

© 1955, The Pennzoil Co., Oil City, Pa., Member Penn. Grade Crude Oil Assn., Permit No. 2

QUICK CASH PROFITS on Imports by Mail Order!

Would you like to know about my proven plan which brings me up to 1,163 cash-in-advance, $2 orders for imports in a single day? Would you like to work this plan, too? It's just buying good imports at low foreign prices and selling them here at big profits by mail order. Full or part time. Even from your own home. No investment in merchandise. I show you everything—how to find choice imports from Amsterdam to Zanzibar—also how to export. Here's a business so big there's room for you and me and many others. Learn how you, too, may go after this big *fast cash!* Write today for FREE details. Air Mail reaches me overnight.

B. L. Mellinger, The Mellinger Co., Dept. E245
1717 Westwood, Los Angeles 24, Calif.

Personal RADIO

IT'S AMAZING! New tiny radio that gives clear reception of local radio stations. NO TUBES and NO BATTERIES TO BUY! NO ELECTRIC "PLUG-INS"! Uses new diode that eliminates them all FOREVER! A self-contained radio in sturdy case with built-in speaker phone. Not a toy, but a practical tiny radio for personal enjoyment. Imagine . . . music, news, sports . . . right in the palm of your hand. **SEND ONLY $4.95** for this COMPLETE READY-TO-LISTEN RADIO. Order NOW. No C.O.D.'s.

NATIONAL, Dept. R-12, Box 5, Sta. E, Toledo 9, Ohio

PROFITABLE HOBBIES

Do **WONDERFUL** things with your spare time! Make beautiful and **UNUSUAL** items for the home, as fascinating gifts, or for **RESALE!** Build a profitable home occupation or hobby! We show you how. Make astonishing jewelry, Ceramics without a kiln, dolls, toys, puppets, figurines, Planters, Ivory, embedded plastics, etc. Send 25c for big catalog and details. Refunded with first order. Write Dept. A-133.

PLASTICAST COMPANY
6612 N. Clark Street, Chicago 26, Ill.

REAL ESTATE — BE A BROKER

PAYS BIG! SEND FOR FREE, BIG, ILLUSTRATED CATALOG NOW! Graduates report making substantial incomes. Start and run your **own business quickly.** Men, women of all ages, learn easily. Course covers Sales, Property Management, Appraising, Loans, Mortgages, and related subjects. **STUDY AT HOME** or in classrooms in leading cities. Diploma awarded. Write TODAY for free book! No obligation.

FREE BOOK TELLS HOW

Approved for World War II and Korean Veterans

WEAVER SCHOOL OF REAL ESTATE (Est. 1936)
2020 Grand Dept. PS Kansas City, Mo.

WELD YOUR WAY AHEAD!

Learn Arc and Gas Welding In Spare Time

Your opportunities are greater when you learn to use this great tool of modern industry. Training in welding opens the door to many key industries. Now you can train at home with UEI's practical course. Includes techniques, metallurgy, blueprints, shop practices, other important phases.

Write For FREE Facts! You can follow home-study training with actual shop practice. High school diploma not necessary. Write NOW!

UTILITIES ENGINEERING INSTITUTE
2523 Sheffield Ave., Dept. WM-4, Chicago 14, Ill.

Copyrighted material

MOTORISTS LOOK AT these AUTOMOTIVE BUYS

DUAL POINT PLATES

HIGHER TOP SPEED

A Double-thrust Self aligning Bearing Distributor Plate Assembly. Quicker starting. More power. Better performance. Greater coil saturation. Smoother acceleration (at all speeds). Greater gas mileage. Longer spark plug life. (Hotter spark assures complete combustion). Specify make and model.

Stock No. 14—Plymouth, DeSoto, Dodge Chrysler POSTPAID $4.95

Stock No. 46—49-53 Ford V8 & Merc—33-54 Chev: 31-49. Buick. Olds & Pont.—**each POSTPAID $3.95**

New Modern "Caddy" Style Headlite Rims

- CHROME PLATED
- EASY TO INSTALL
- NO HOLES TO DRILL

Gives cars that "Look of Tomorrow" — for that modern appearance.

Stock No. 29—fits 1952-53 Fords, 1954 Ford, 1953-54 Chevrolet, 1949-53 Cadillac, 1949-52 Pontiac.

For the above cars. **POSTPAID $6.95**

Stock No. 95 Fits 1949-52 Buick

48-49 Cadillac	49-51 Mercury
49-52 Chevrolet	49-54 Nash
49-50 Chrysler	48-50 Olds
49-54 De Soto	49-54 Plymouth
49-54 Dodge	48-53 Packard
49-51 Ford	51-53 Henry J
47-52 Kaiser-F	46-53 Willys

POSTPAID $5.40

No. 96—For 1955 Ford. **POSTPAID $8.85**

DYNA Highly Polished Aluminum CARBURETOR SUPERCHARGER

Easily Installed. Complete with gasket cap, screws & instructions. A highly efficient mixing chamber that actually mixes gas and air with volcanic force. Lowers the fuel-air temperature 50 to 60 degrees, allowing the mixture to enter carburetor before condensation takes place.

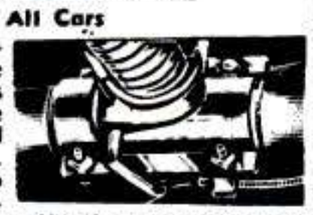
- INCREASES MILEAGE
- INCREASES POWER
- GREATER ECONOMY
- GREATER HORSE POWER
- Eliminates "PING"

Many owners report complete absence of "Ping" due to uniform fuel dispersion, even with low test fuel. **For All Cars. Give Exact Year, Model and Make of Car.**

No. 101—Each POSTPAID $23.60

EXHAUST CUT-OUT

UNIVERSAL— Fits All Cars



Exhaust tone is controlled from the dash. Can be used as a cut out in the country and closed in restricted areas. Or may be used to operate two different toned mufflers. Well constructed of heavy plate steel. Strengthens the exhaust pipe.

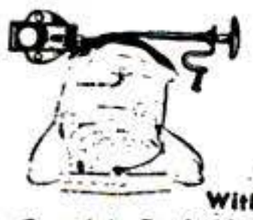
No. 66—POSTPAID Each $3.42

KNOCK OFF TYPE SPINNER Die Cast Bright Chrome Plated

Can be bolted on most any hub cap or full wheel disc. Gives car that Continental Look. Round part 3¾" diameter, overall length including Knock-off 7¾" thickness ¾"

No. 70—POSTPAID —SET of 4 $5.21

Theft Proof HOOD LOCK KIT



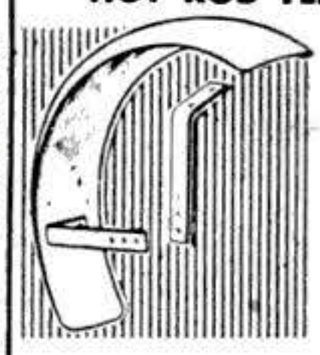
Operates from the dash. Protects all Underhood Parts from Theft.

Fits Ford, Chevrolet, Plymouth and All Cars With Out side Hood Latch.

- Complete Do-It-Yourself Unit.
- Easy Step by Step Installation Instructions
- Does Not Interfere with Original Hood Safety Catch when Properly Installed
- Prevents Hood from Being Opened When Car Is Locked
- Protect Your Power Steering Unit, Battery, Heater, Etc. Fully Guaranteed.

No. 56—POSTPAID Each.... $3.95

HOT ROD FENDERS

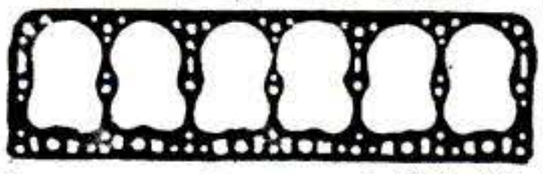


For use in Custom Re-Designed Autos, Trailers, Cycles and other Mobile Equipment. Sturdy—Light—Durable. Made of 20 gauge steel. Contoured to fit all automobile tires. Universal mounting brackets adapt to standard brake backplates. Prime finished—ready to paint.

No. 31 Pair..... $8.95

HIGH COMPRESSION HEAD GASKETS

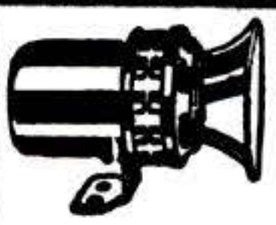
EXTRA-THIN .020" SOLID COPPER



These copper gaskets are only .020" thick It is the same as milling heads .040" to .050", and "hops up" the motor to give amazing acceleration, power and mileage. State exact year, make and model when ordering. (If car is V8 type two gaskets are furnished at no extra charge.)

Stock No. 21— POSTPAID $4.95

HI-SPEED ELECTRIC SIREN



Developed especially for the U. S. Navy & Coast Guard. Now used by hundreds of Fire & police departments, buses, ambulances, etc. Complete with bracket, screws, 10 ft. of cable & push button. Green Enamel.

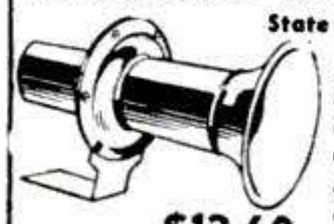
No. 71—POSTPAID —12 VOLT ea..... $13.24

No. 91—POSTPAID —6 VOLT ea..... $13.70

Specify Voltage when ordering.

AH-OOO-GAH Chromed HORN

State Voltage Needed.

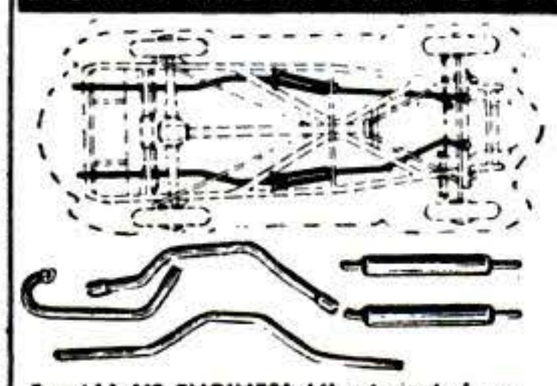


Here it is for the sport car enthusiast. Not a vibrator or other substitute but a genuine motor driven horn.

$12.60

No. 60— Postpaid —6 VOLTS, 12 VOLTS

● CUSTOM BUILT ● DUAL MUFFLER SETS



For ALL V8 ENGINES! All sets include:—
2 HOLLYWOOD Type MUFFLERS
1 Dual Side Head Pipe. 1 Set of Clamps.
1 Dual Side Tail Pipe. Easy instructions.

Dual flow installation eliminates 75% or more of the back pressure in existing standard equipment cars. Tests prove that these sets INCREASE HORSEPOWER as much as 7%. You get smoother—increased performance and better idling. All sets Custom Built for perfect fit. Easy to install.

Stock No. 87—For following Cars:		per set
53-55	BUICK	$32.50
50-51	CADILLAC, except Convert.	27.18
1955	CHEVROLET, except Convert.	24.50
51-53	CHRYSLER, except Convert.	37.30
52-54	DESOTO, except Convert.	37.30

35-53	Ford V8,	19.95	54-55	Ford V8	22.95
49-51	LINC.	24.71	52-54	LINC.	39.20
39-53	MERC.	19.95	54-55	MERC.	24.50
49-53	OLDS.	24.93	54-55	OLDS.	26.95
1955	Pont. V8	24.50	1955	Ply. V8	24.95
51-52	Stud. V8	24.95	53-54	Stud. V8	27.95

Be sure to give make, year, model, body style of car & state if you have Power Brakes, Power Steering, Standard or Automatic Transmission.

FREE GOOD USED TUBE WITH EVERY GOOD USED Famous BRAND TIRE

Every Tire & Tube Guaranteed. 50% to 90% HIGH TREAD! Each tire thoroughly inspected & repaired. NOT "Retreads or recaps" but Famous Name Brands. Free Tube with each tire purchased. **Give size when ordering.**

No. 122
6.00-16
6.50-16
7.00-16
6.70-15
7.10-15
7.60-15
8.20-15
5.50-17

4.95 FOR BOTH TIRE and TUBE

Electric TRUNK KIT

This Electric Trunk Release Kit enables the Custom Car Owner to open his trunk from inside the car by the touch of a button. Easily installed Kits come complete with illustrated instructions.

For '36-53 Ford & Mercury. All G.M.C. 49-52 except 490 Oldsmobile 98.

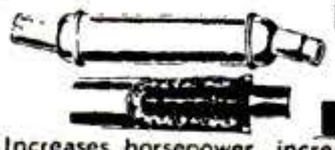
No. 76— State year, make & model. Each Postpaid $6.56

CHROME PLATED CHECKERED FLAG EMBLEM

Die Cast . . . Triple Chrome Plated! No Holes to Drill . . . Just remove backing and apply on: Auto Hoods, Fenders, Trunks, Doors, Etc. 4" Wide, 1¾" High. Black and Chrome.

No. 57—Postpaid—Each:..... 98c

DEEP TONE Fiber Glass Packed MUFFLERS



Increases horsepower, increases gas mileage, straight-thru construction, no back pressure, no high pitch irritating noises, deep powerful non-offensive tones. Specify make and model car.

Stock No. 37— Postpaid $4.95

PLASTIC "SEAT-SAVERS"

One size fits all makes of cars

- Made of finest heavy gauge plastic with reinforced stitched seams.
- Completely protects present covers—front, back and seat.
- Ideal for shop men to protect upholstery.
- Slips on and off in a jiffy—no elastic or tapes to tangle, fray or pull out.
- Completely washable, waterproof and greaseproof.

Postpaid

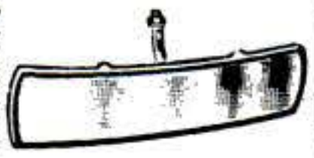
No. 82— —Each seat..... $2.95

BERMUDA CLANGING BELL

It's the New "Rage"! Gives a most amusing and commanding two-tone bell sound. Easily installed under car floor by driver's seat. Step on plunger. Highly polished. Fits any car.

Stock No. 49— Postpaid $3.95

REAR-VIEW MIRRORS



Special Curved Convex Glass Gives Curb to Curb Vision—Eliminates Blind Spots — Wider Range of Vision thru the Larger Windows of New Cars. CURVED MIRROR — 2⅝"x10" in Metal Case Painted a Neutral Grey Hammered Finish with a Plastic Rim to Match.

POSTPAID

No. 99—Fits all cars. Give exact year, make & model. Ea..... $2.94

Flared FENDER SKIRTS

All metal. Prime finish with rubber beading. For these model cars:—

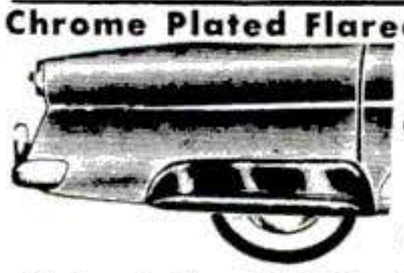
49-54 Chevrolet except Bel Air	46-54 Frazer
46-54 DeSoto	46-54 Kaiser
46-52 Dodge	49-50 Olds., 76, 88
49-51 Ford	46-52 Plymouth
1955 Ford	49-52 Pontiac
	52-54 Willys

Give exact year, make & model ing. No. 59 Pair. $6.75

52-54 FORD & MERCURY No. 83—Pair..... $7.94

Stk. No.			Stk. No.		
118	55 Chev.	$11.95	120	53-54 Ply.	$8.57
119	55 Merc.	$8.50	121	55 Ply.	$8.95

Chrome Plated Flared Skirts



CUSTOM FIT CHROME PLATED CUSTOM FIT for these cars:

Stock Number 104 fits:— Chevrolet 53-55... Ford 49-55..... Mercury 52-54.... Plymouth 53-55... **Each Pair $14.95**

No. 105— for these cars:

46-50 Chrys.	46-49 Frazer	Each Pair
46-52 DeSoto	46-49 Kaiser	
46-52 Dodge	49-50 Olds. 76 & 88 Exc. 4 Dr.	$14.95
46-51 Plymouth Exc. Sub.		

FUEL PRESSURE REGULATOR

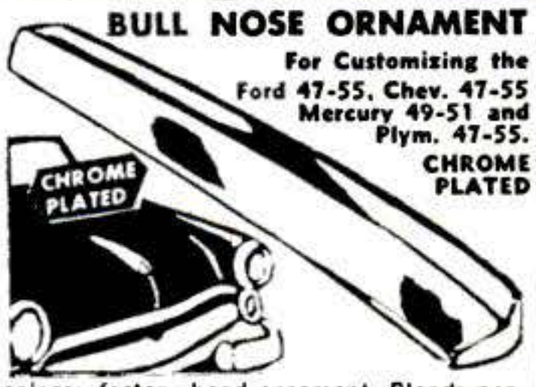
Prevents Flooding, Stalling and Vapor Lock

For any make or model car. This regulator easily installed on any carburetor, prevents flooding and stalling. Greatly reduces gas waste caused by the fuel pump pulsations and "surge".

Stock No. 28 POSTPAID, each $4.95

BULL NOSE ORNAMENT

For Customizing the Ford 47-55, Chev. 47-55 Mercury 49-51 and Plym. 47-55. CHROME PLATED



Replaces factory hood ornament. Blends perfectly into moulding.

No. 47—POSTPAID each only... $1.95

Get Your Own Copy of Money Saving NEW 148 PAGE Auto Parts and Accessory FREE! CATALOG

ORDER NOW!

This giant 148 page catalog, packed with over 50,000 items for the automotive, truck, taxi, hot rod and custom car owner . . . is yours FREE with any order for items selected from this advertisement. If you just want the catalog, send only 25c to cover part of handling and mailing cost (refunded on your first order).

HOW TO ORDER: Send payment in full or 25% deposit with order. Balance C.O.D. When payment in full accompanies order, we pay shipping charges on items marked Postpaid. Others F.O.B. Chicago. Be sure to give make, year and model of car. **100% SATISFACTION GUARANTEED or Money Refunded.**

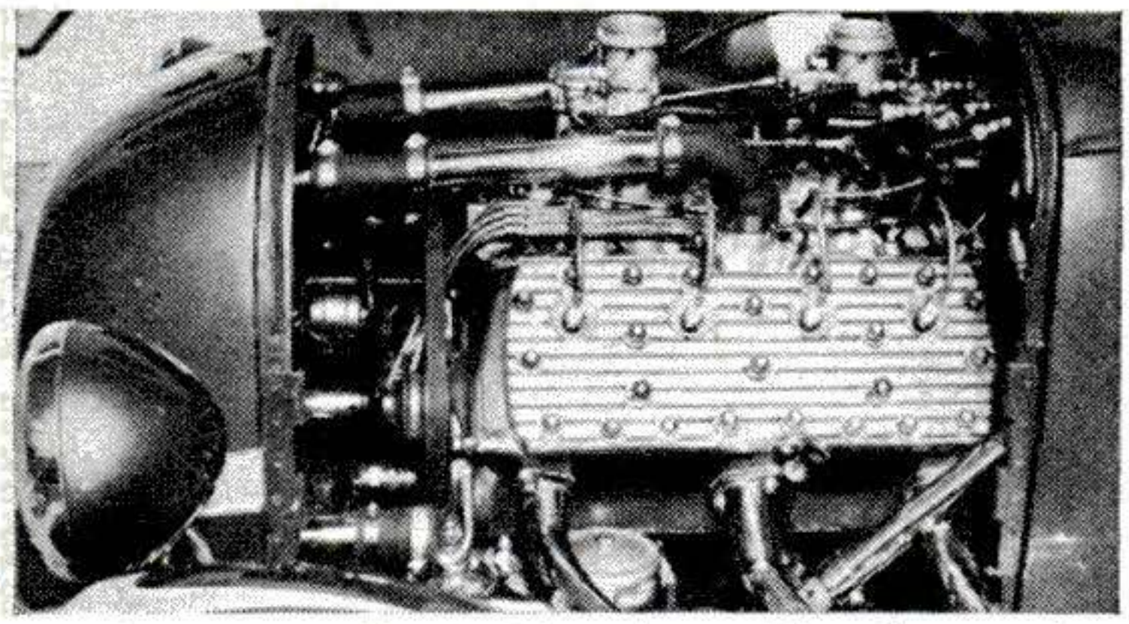
J. C. WHITNEY & CO.

1917-T25 Archer Ave., Chicago 16, Ill.

Copyrighted material

IF YOU "EAT, SLEEP AND LIVE" CARS...

TURN YOUR HOBBY INTO A CAREER!



Get America's Big-time, Big-future

AUTO MECHANICS & DIESEL COURSE *at home in your spare time!*

Los Angeles' *National Schools,* America's automotive Technical Trade School since 1905, now brings its famous resident Shops and Faculty direct to you at home—to prepare you to earn more money, with job security, in today's fast-moving, opportunity-filled Auto Mechanics Industry!

Get *your* home training from the "Car Capital of The World"—America's most auto-minded city, center of Hot Rod and Sports Car activity! Mail coupon right now!

"SHOP-METHOD" HOME TRAINING!

YOU MASTER ALL PHASES, INCLUDING DIESEL! All lessons fully illustrated. Latest equipment covered.

THIS SET OF LIFETIME TOOLS IS YOURS! Also all-metal tool box. Part of your course, yours to keep.

EARN WHILE YOU LEARN! We show you how to start Spare Time Earnings soon after enrollment.

ATTENTION MEN OF DRAFT AGE. Learn how you can achieve higher rating and pay. Mail coupon *at once!*

APPROVED FOR G. I. TRAINING. Both Home Study & Resident Courses. Free help with technical and personal problems—Job Placement Service.

Send for FREE FACT-BOOK AND SAMPLE LESSON!
NOW! 2 offices to serve you faster! Mail coupon today to one nearest you!

NATIONAL SCHOOLS

Technical Trade Training Since 1905

LOS ANGELES 37, CALIFORNIA

IN CANADA: 811 West Hastings Street, Vancouver, B. C.

MAIL NOW TO OFFICE NEAREST YOU!

(mail in envelope or paste on postal card)

NATIONAL SCHOOLS, Dept. DC-55

4000 S. FIGUEROA STREET LOS ANGELES 37, CALIF. OR **323 WEST POLK STREET CHICAGO 7, ILLINOIS**

Send *FREE* Auto-Mechanics Book and Sample Lesson. No obligation, no salesman will call.

NAME _____ BIRTHDAY _____ 19__

ADDRESS _____

CITY _____ ZONE ____ STATE _____

☐ Check if interested ONLY in Resident School Training at Los Angeles.

VETERANS: Give Date of Discharge _____

GRAVELY makes tough Jobs EASY!

Powerful! Rotary Mower is only *one* of 21 tools . . . 5-HP Gravely Tractor does every lawn, garden, field job *easier, better*! All-gear Drive, Power Reverse. New "Power vs Drudgery" Booklet FREE! Write today . . . and ask about the NEW EASY PAY PLAN.

(Self Starter Optional)

★ GRAVELY ★

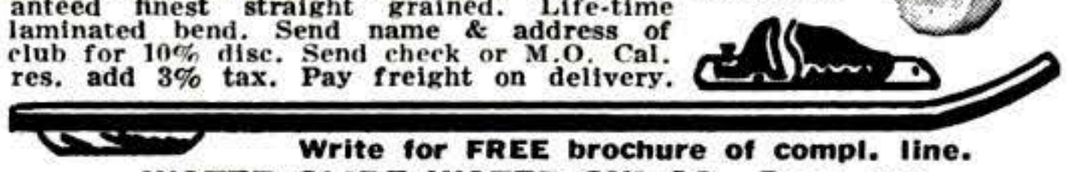
BOX 584 DUNBAR, W. VA.

FIELD-TESTED FOR 34 YEARS

SKI-DOUBLES KIT **DO IT YOURSELF & SAVE — HAVE FUN!**

Champion Harry Laughinghouse, 3-time winner 50-mile Grand National Catalina Race, says, "My Water-Glide Skis are standard gear. You can't beat Water-Glide." SKI-DBLES. KIT, incl. metal fin, without bindings **$11.99**

PROFESSIONAL BINDINGS, pr. **$11.20.** Wood guaranteed finest straight grained. Life-time laminated bend. Send name & address of club for 10% disc. Send check or M.O. Cal. res. add 3% tax. Pay freight on delivery.



Write for FREE brochure of compl. line.

WATER-GLIDE WATER SKI CO., Dept. PS

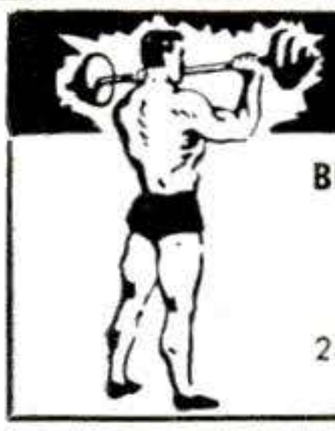
8418 Lennox Ave., Van Nuys, California

Watch Repairing Pays Big Money Learn at home

Watch repairers in great demand. Train step-by-step in 10 easy lessons. We furnish all tools and 15 jewel watch and practice movement. Turn spare time into cash. A licensed school. Low cost. Send for FREE book today.

ILLINOIS SCHOOL OF WATCH REPAIRING

2870 Elston Ave., Dept. P.S.-55, Chicago 18, Ill.



Bar Bells

BUY DIRECT FROM FACTORY
Write for free booklet and price list

$8.95 up

INDEPENDENT IRON WORKS
2416 East 23rd Street, Dept. "C"
Los Angeles 58, Calif.

Free! 153 GERMANY

Giant and midget-sized **STAMPS;** hated Hitler heads; blood-red swastikas; inflation issues with pre-war face of millions of dollars; Allied and Russian Occupation issues; animals, birds, airmail stamps—153 all-different, guaranteed worth $2.46 at Catalog prices. **EXTRA!** Free booklet, bargain lists, and other fascinating offers for your free consideration. Send 10c for mailing expenses. Supplies limited. *Act NOW!*

USE THIS HANDY COUPON

JAMESTOWN STAMP CO., D-138, Jamestown, N.Y.

RUSH my FREE Collection of 153 Germany & other offers. I enclose 10c for cost of mailing.

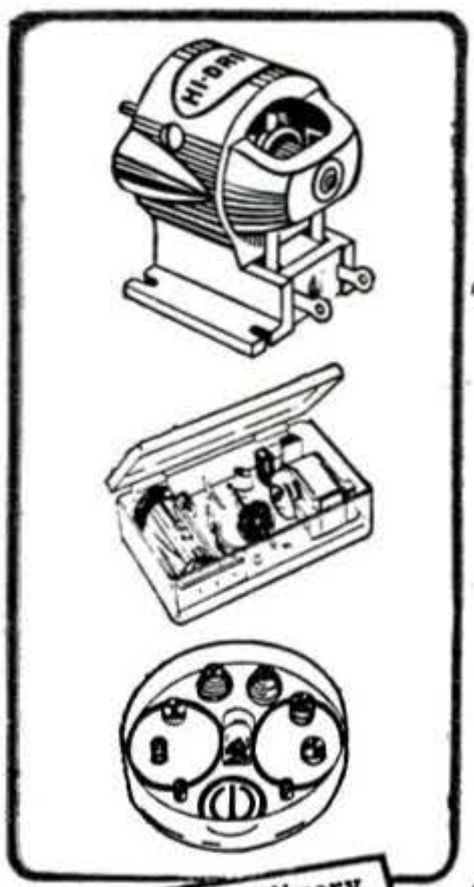
Name .....

Street .....

City ..... State .....

Copyrighted material

NEW POWERFUL ELECTRIC MOTOR for HOBBY-RESEARCH-INDUSTRY



Meet Wilson's NEW Hi-Drive motors—tiny yet powerful enough to motorize hobby items, toys, recording equipment, research devices, industrial models. Long motor and battery life. Other high-quality, low-cost items listed may help solve your motorizing problems.

*No. 7-100 Hi-Drive Motor, 1½-3V $2.00
*No. 8-100 Same for 3-6V $2.50
*No. 9-100 Same for 6-12V $3.00
No. 3-100 Tiny Atom Motor, 1½-3V $2.00
For higher voltages. $2.50
No. 5002 2-speed metal motor $3.00
No. 96 Steel frame motor with gear, pinions, pulley, worm $4.00
*No. 3113 Tiny Atom motor assembly kit with many acc. $3.00
No. 1300 Small accessories kit $1.00
No. 3700 Large accessories kit $3.00
No. 4000 DeLuxe acc. kit with motor $5.00
No. 700 Super-Power kit with motor, speed reducer, all accessories $10.00
*No. 88 Kit of 8 pulleys—2 belts $2.00
No. 3000 Vari-speed gear unit. $4.00

*Item illustrated. Ask for FREE Cat.

All Wilson's motors have Permanent Alnico V Magnets.

Remit with order and we pay postage in U.S.A. No C.O.D. Add 3% Sales Tax for delivery in Ohio. Write Dept. PS

For quick delivery see your local dealer — or order direct

WILSON'S OF CLEVELAND
425 Lakeside Ave., N.W. • Cleveland 13, Ohio

Nagging Backache Sleepless Nights

Often Due to Kidney Slow-down

When kidney function slows down, many folks complain of nagging backache, headaches, dizziness and loss of pep and energy. Don't suffer restless nights with these discomforts if reduced kidney function is getting you down—due to such common causes as stress and strain, over-exertion or exposure to cold. Minor bladder irritations due to cold or wrong diet may cause getting up nights or frequent passages.

Don't neglect your kidneys if these conditions bother you. Try Doan's Pills—a mild diuretic. Used successfully by millions for over 50 years. It's amazing how many times Doan's give happy relief from these discomforts—help the 15 miles of kidney tubes and filters flush out waste. Get Doan's Pills today!

BE A WELL-PAID
TELEVISION
SERVICE TECHNICIAN!

GET DOWN-TO-EARTH PRACTICAL TV TRAINING WITH WTI EXPERTS FOR THE TOP PAYING $5,000-$10,000 PER YEAR JOBS
UHF — COLOR — VHF

Master the latest, up-to-the-minute TV and Color TV developments QUICKLY by working in our BIG SHOPS AND LABORATORIES UNDER THE GUIDANCE OF EXPERT INSTRUCTORS. You can Earn While You Learn, too. W.T.I. Shop trained men are in BIG DEMAND. Develop a highly profitable business of your own following our professional methods. Non-essential math and engineering theory omitted. FREE Part-time employment assistance and Graduate Placement Service. Come to America's Leading Television Servicing School to learn and EARN TOP PAY FROM THE START!
APPROVED FOR VETERANS—We Finance You—pay most of tuition after graduation. Send for details TODAY!

SEND FOR FREE COPY TODAY!

WESTERN TELEVISION INSTITUTE Dept. M-55
341 W. 18th St., Los Angeles 15, Calif.
Without obligation, please send FREE fully illustrated booklet. (No salesman will call.)

NAME _____ AGE _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

Is your radiator ready for Summer driving?

SUMMER—with hot weather, more driving, heavier traffic—puts a two-way strain on your car's cooling system. The cooling load is much heavier and heat multiplies the speed of rust and corrosion.

A clean system • To get good heat transfer the cooling system must be clean. Often the inside surfaces are coated with dirt, grease, rust or mineral scale. Sometimes there's enough sediment and rust to clog up some passages and part of the radiator section. If fan and pump are working right, a dirty system is the most likely cause of engine overheating.

Take out anti-freeze • Anti-freeze, too, increases overheating. In hot weather, it is important to remember that water can transfer more heat than anti-freeze solution does. Result? A combination of anti-freeze and a dirty system will cause enough overheating to cost you as much as 6 points in gasoline octane rating. Put another way, that means the equivalent loss of 1½ gallons of premium gasoline in every tankful.

Stop corrosion damage • Water alone will cause rust and corrosion. In Summer heat, water plus carbon dioxide, exhaust gases and other likely impurities can cause serious corrosion damage. The inhibitors in anti-freeze will protect you for the winter, but they may become exhausted and you can't depend upon them for Summer driving.

Expert advice • The Society of Automotive Engineers recommends, "Where anti-freeze has been used, drain the solution in the Spring; flush the system thoroughly and clean if necessary; then install a fresh filling of Summer rust inhibitor and water."

A message in behalf of your car engine from . . .

OLIN MATHIESON
CHEMICAL CORPORATION
Automotive Products Department
Baltimore 3, Maryland

Makers of PYRO Radiator Chemicals
U.S.I. Permanent and Super Pyro® Anti-Freezes

Copyrighted material

INVENTORS

WE recommend that you take the following preliminary steps toward patent protection. Make a disclosure of your invention; sign, date and have your disclosure witnessed by two people who understand your invention; authorize us to conduct a preliminary search among previously granted U. S. patents for similar types of invention. We give you a report on the probable patentability of your invention and our recommendation for further course of action.

Let us send you a copy of our instructive booklet, "Patent Protection for Inventors" and our convenient "Evidence of Invention" disclosure form. No obligation.

VICTOR J. EVANS & Co. *Merlin M. Evans*
REGISTERED PATENT ATTORNEY
140-E MERLIN BUILDING, WASHINGTON 6, D. C.

INVENTORS

PROTECT YOUR INVENTION BY A U. S. PATENT. SEND FOR FREE "INVENTION RECORD" FORM AND "PATENT INFORMATION EVERY INVENTOR SHOULD HAVE".

CARL MILLER
REGISTERED PATENT ATTORNEY
WOOLWORTH BLDG., 35th FLOOR, 55C
NEW YORK CITY

INVENTORS

I shall be pleased to furnish you, upon request, with information relative to patent procedure—without any obligation on your part.

PATRICK D. BEAVERS
Registered Patent Attorney
937 Columbian Building, Washington 1, D. C.

"WE'RE LOOKING FOR PEOPLE WHO LIKE TO DRAW" . . . says Norman Rockwell, one of America's 12 Most Famous Artists. If *you* like to draw, you may have talent to become a successful artist, spare or full time. Find out for sure with our scientific, 8-page **Free Art Talent Test**. Thousands paid $1 to take it. Get it FREE. No obligation. Send your name, address, age to: Famous Artists Schools, Dept. 11-S, Westport, Conn.

INVENTORS

Send for
PATENT INFORMATION
Book and
INVENTOR'S RECORD
without obligation
GUSTAVE MILLER
55-PS WARNER BUILDING
WASHINGTON 4, D.C.

REGISTERED PATENT ATTORNEY
ASSOCIATE EXAMINER
U.S. PAT. OFF. 1922-1929
Patent Attorney & Advisor
U. S. NAVY DEPT. 1930-1947
PATENT LAWYER

BETTER JOB, BIGGER PAY

Learn How You Can Win A

•Today, choose the career you want and prepare for success during spare time at home. Or if you are in work you like best, start training at once for quick promotion and higher pay. For 58 years American School has helped many, many thousands of ambitious persons to make their dreams come true—important positions, high incomes, job security. List at right contains only a few of many big opportunities we offer.

For FREE career information, send us your name and address and tell us which opportunity subject you prefer. Do it TODAY.

☐ Accounting
☐ Architecture & Building
☐ Automotive Technician
☐ Bookkeeping
☐ Business Management
☐ Civil Engineering
☐ Drafting
☐ Electrical Engineering
☐ Electronics—Industrial
☐ High School Courses
☐ Mechanical Engineering
☐ Plumbing—Practical
☐ Private Secretary
☐ Salesmanship—Outside
☐ Sheet Metal Work

AMERICAN SCHOOL, Dept. G546, Drexel & 58th, Chicago 37, Ill.
Canadians: Write American School, 1610 Sherbrooke W., Montreal

---

PATENTS

C. A. SNOW & CO.
REGISTERED PATENT ATTORNEYS
WRITE FOR INFORMATION TO
426 SNOW BUILDING, WASHINGTON 1, D. C.

INVENTORS

Whether an invention is patentable can be substantially determined by a search of the U. S. Patent records. Without obligation, write for information explaining the steps you should take to secure a patent.

JOHN N. RANDOLPH
Registered Patent Attorney
205 Columbian Building Washington 1, D. C.

HYPNOTISM

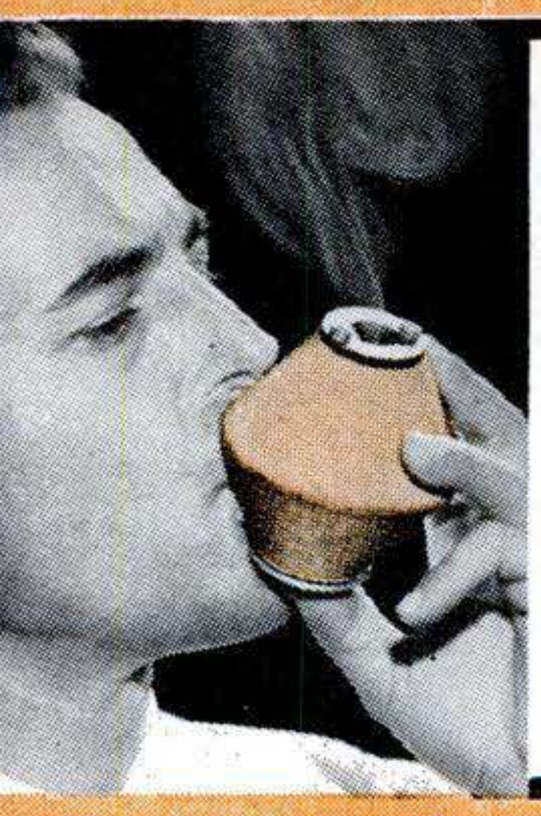
Be Popular Amaze Entertain

Learn to apply Hypnotism and Autosuggestion in short time by training at home, with GUARANTEED RESULTS—DON'T DELAY. Write to America's oldest, most famous Hypnotic school for free information—now—today. Sent in plain wrapper.

SCHOOL OF APPLIED HYPNOLOGY
Dept. 25 120 Central Park South N. Y. 19, N. Y.

Copyrighted material

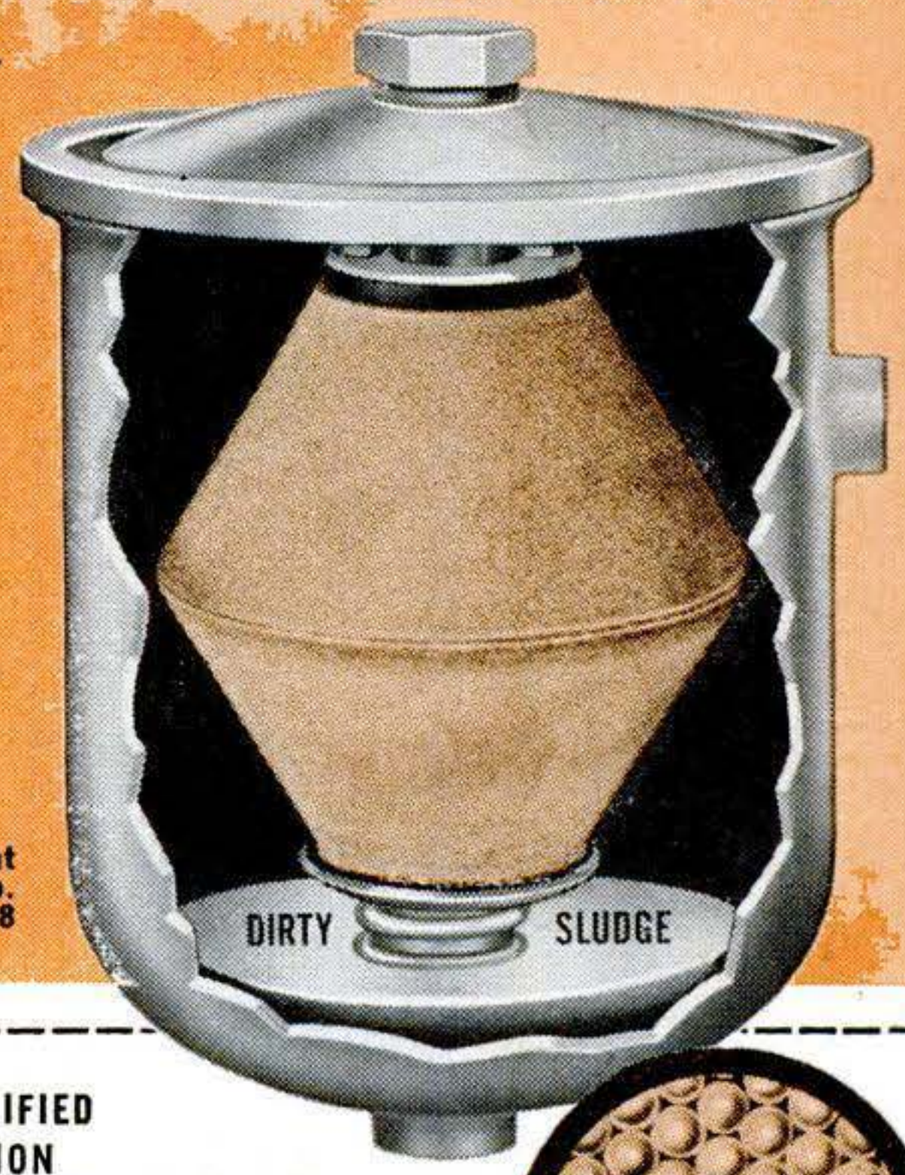
End Filter Replacement FOREVER!



TRY THIS TEST

This simple *"bronze that breathes"* smoke test demonstrates the amazing porosity of a MICRO BRONZE oil filter. Metallurgists call bronze "the timeless metal." Thanks to war-time and post-war scientific development, MICRO BRONZE engineers now use sintered bronze to prevent undue engine wear and eliminate frequent oil changes.

with Revolutionary New Type *Micro* BRONZE Permanent All-Metal Oil Filter



ORIGINALLY DEVELOPED FOR THE U.S. GOVERNMENT for use in supersonic aircraft and guided missiles, MICRO BRONZE-type filters are the only filters made that provide *full* lubrication protection for modern automobiles!

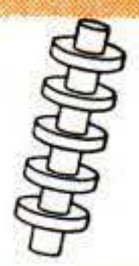
ONLY FILTER THAT DESTROYS ENGINE ACIDS

GUARANTEED FOR 99 YEARS

FILTERS THE DIRT BUT NOT THE DETERGENTS

U.S. Patent App. No. 464498

Only Filter in the World with Built-in Acid Neutralizer!



Special Acid Neutralizer Element in the Micro Bronze Filter →

THE SECRET IS THE "BRONZE THAT BREATHES"

Here at last is an oil filter that never needs replacing . . . increases your engine power . . . ends frequent oil changes . . . adds thousands of miles to engine life . . . stops waste of valuable oil additives . . . and saves you worthwhile money in the bargain! Tests give conclusive proof that Micro Bronze type filters are the finest, most economical oil filtering units ever made.

MAGNIFIED PORTION

of MICRO BRONZE filter showing microscopic metal balls fused together to make a solid, but porous, filter. MICRO BRONZE metal can't absorb additives, can't "channel," can't "blow," yet screens out finest particles of grit and metal which drop to bottom of filter housing as "sludge."

"FILTERS THE DIRT—BUT NOT THE DETERGENT!"

Major oil companies have developed heavy duty oils containing expensive additives and detergents that greatly reduce engine wear. Conventional-type filter replacement packs —standard equipment on many cars—soak up these beneficial elements, but by-pass damaging abrasives and metal particles into the engine. The MICRO BRONZE exclusive double-cone design *filters out* abrasives and metal particles as microscopic as 39/millionths of an inch (one micron). Oil additives are *left in* to provide a protective film between moving parts. New MICRO BRONZE Oil Filters, combined with modern HD oils, *double your engine's life!*

Burned gasoline creates a strong sulphuric acid solution that eats into vital engine parts, causing them to wear out years before their time. MICRO BRONZE *is the only filter in the world with a built-in acid neutralizer* which adds years to engine life and eliminates the main reason for frequent oil changing.

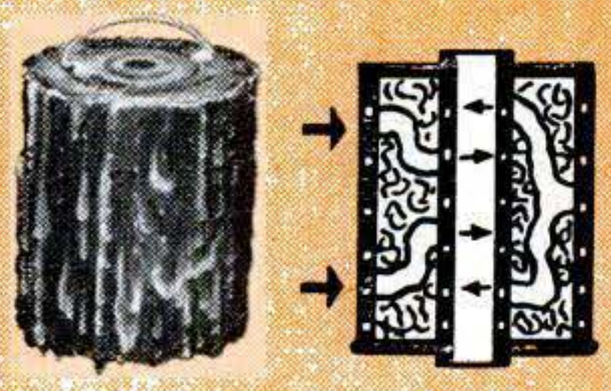
FITS EVERY CAR AND TRUCK

A MICRO BRONZE Unit that fits any standard filter housing including all full-flow models costs only $6.95. Easy to install, never needs changing. MICRO BRONZE Filter Housing, $9.95.

You'll save the total cost of your MICRO BRONZE Oil Filter in a few weeks. You save in replacement pack costs and "the quart for the pot" you need every time you change filter packs. *Most important, you save costly oil changes—with average driving, one oil change per year is sufficient.*

SOLD UNDER MONEY-BACK GUARANTEE TO LAST FOREVER!

THROW AWAY YOUR OLD FILTER



At left is shown an old-style filter "pack"—the kind that's probably in *your* car now. How can a dirty pack keep oil clean? It can't—actually contaminates your oil! Illustration at right shows how ordinary packs "channel" as a result of oil pressure, allowing dirt to tunnel through the pack and into the oil.

THIS MAY BE WORTH $10,000 OR MORE TO YOU!

If you would like to be one of the people we are appointing as a MICRO BRONZE Distributor or Dealer, write, wire or phone us today. Exclusive territories with profit potentials of thousands of dollars are now being awarded. Address: Sales Division, MICRO BRONZE Filter Corp., 11766 W. Pico Blvd., Los Angeles 64, California

USE COUPON NOW

Micro BRONZE FILTER CORP.

11766 W. Pico Blvd., Los Angeles 64, Calif. • Cable Address: Micronize

MICRO BRONZE Filter Corporation, Dept. PS-55
11766 W. Pico Blvd., Los Angeles 64, Calif.

Ship me immediately.....MICRO BRONZE Oil Filters with lifetime guarantee as follows. I understand you will promptly refund my money if I'm not pleased.

☐ Conversion unit @ $6.95. Factory pays shipping.

☐ MICRO BRONZE Housing Unit (needed where car does not now have filter), $9.95 (does not include filter element). Factory pays shipping.

NAME_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

MAKE, MODEL & YEAR OF CAR_____

Copyrighted material

NOW! Do your own electroplating! MAKE JEWELRY, SILVERWARE, CHROME .... LOOK LIKE NEW!

"DO-IT-YOURSELF"

You can plate new or worn metals quickly, easily with the new

APPL-I-COTERS and DIP-COTERS

Restore beauty and brilliance with just one plating.

COMPLETE PLATING KITS as low as $3.95

APPL-I-COTER brush-plates large pieces

Replate unsightly worn spots on your valuables or completely plate small items with these amazing new inventions. You will be proud of the professional plating job you can do — and remember—the plating you apply becomes an indestructible part of the metal itself. Can be polished repeatedly and will not wash, rub or rust off.

DIP-COTER bath-plates small articles

SIMPLE TO OPERATE!

Hold APPL-I-COTER like a fountain pen — touch metal disc to article to be plated — dip brush in solution and coat.

With DIP-COTER lower article into solution, dip in anode for 20 seconds — and the plating is done. Both operate on the mild, safe current of two penlite batteries.

A THOUSAND USES!

Restore plating on jewelry, silverware, chrome appliances, modelcraft, copperware, loving cups, golf clubs, fishing reels, bumpers and trim on autos. Choose from these complete kits:

- Silver kits plate with pure silver.
- Gold kits plate with 24 kt. yellow gold.
- For CHROME OR NICKEL use Met-L-Cote kits. Plates with a non-corroding metal alloy similar to chrome and nickel.
- Rhodium kits plate with pure rhodium — more precious than platinum — beautiful as silver . . . but doesn't tarnish.
- Copper kits plate with pure copper.

ALL KITS INCLUDE FULL AND SIMPLE INSTRUCTIONS

Go to your nearest **HOBBY OR HARDWARE DEALER** if he hasn't stocked them yet

MAIL THIS COUPON TO:

PENNANT MFG. CO., DEPT. S5, Box 100, Madison Sq. Sta., N. Y. 10, N. Y.

Please rush electroplating kits I have checked below. I enclose full price, sent postpaid. No C.O.D.'s.

	Silver	Met-L-Cote	Copper	Gold	Rhodium
Appl-I-Coter Kit for brush-plating large pieces	☐ 3.95	☐ 3.95	☐ 3.95	☐ 6.15	☐ 7.95
Dip-Coter Kit for bath-plating small articles	☐ 3.95	☐ 3.95	☐ 3.95	☐ 6.15	☐ 7.95
Combination Appl-I-Coter and Dip-Coter Kit	☐ 5.95	☐ 5.95	☐ 5.95	☐ 8.95	☐ 12.45
Extra Anodes	☐ .50	☐ .50	☐ .50	☐ 1.25	☐ 3.50
Extra Solution 2 oz.	☐ 1.50	☐ 1.50	☐ 1.50	☐ 3.00	☐ 3.25

Combination Kits of all Five Metals, Appl-I-Coter ☐ 19.95 Dip-Coter ☐ 19.95

Combination Kits of all Five Metals, both Appl-I-Coter and Dip Coter ☐ 29.95

SAVE MONEY—BUY COMBINATION KITS—SEE LOW PRICES

NAME _____

STREET _____

CITY _____ STATE _____

My dealer is _____

GUARANTEED — Money back if not satisfied

FULLY GUARANTEED TIRES COST LESS!

SALE — PENNA'S LARGEST STOCK

BUY WITH CONFIDENCE FROM PYRAMID TIRE

Nationally famous **FIRESTONE, GOODRICH, U.S. ROYAL, GOODYEAR,** and other makes. Every tire selected and inspected for your safety.

WHITE WALL TIRES $1 EXTRA

HIGH GRADE TIRES GUARANTEED 12 MONTHS

600x16	4.14	700x16	5.14	32x6 (8)	8.84	825x20	14.24
650x16	4.54	670x15	4.74	32x6 (10)	10.84	900x20	13.34
650x15	4.34	650x20	7.84	750x20 (8)	8.54	1000x20	14.14
700x15	4.64	700x20 (8)	8.94	750x20 (10)	9.94	1100x20	16.14

AAA PREMIUM GRADE GUARANTEED 18 MONTHS

550x15	5.48	700x15	5.98	760x15	5.58	750x20 (10)	14.98
600x16	5.28	700x16	6.78	550x17	5.48	825x20	18.68
600x16 (6)	6.58	700x16 (6)	7.98	600x20	9.78	900x20	18.98
640x15	5.68	750x16 (6)	8.98	650x20	10.88	1000x20	19.98
650x16	5.78	800x15	6.88	700x20	12.88	1000x22	21.98
650x16 (6)	6.98	820x15	7.48	32x6 (8)	10.48	1100x20	20.98
650x15	5.98	710x15	6.09	32x6 (10)	12.48	1100x22	21.98
670x16	6.18	550x18	5.98	750x20 (8)	12.98	1100x24	23.98

MILITARY SPECIAL

AA Guaranteed 12 Months—

900x16	10.69	1000x20	19.98
750x20	10.98	1100x20	21.98

AAA GUARANTEED 18 MONTHS

900x16 14.98 • 750x20 16.48

New Tread Guar. 24 Mos.

600x16		8.98
600x16	(6)	9.98
700x15	(6)	15.95
750x20	(8)	24.98

Largest stock of used tires in the East. Thousands of satisfied customers. Write for Free Catalogue.

MONEY ORDER OR CHECK WITH ORDER. NO C.O.D.'s

PYRAMID TIRE CO.

1333-35 North 5th St. Dept. S, Phila. 22, Pa.

STAMP COLLECTORS

312 Stamps Only 25c

Collection of 312 all different foreign stamps including group of **sport sets** from Nicaragua, Marino, Hungary, MUSICIANS of Ifni. Western Sahara, Guinea, Czechoslovakia. **PLUS** hundreds of interesting issues from the four corners of the world. This collection catalogs $6.50 and comes to you for only 25c with our approvals.

APEX STAMP CO., Dept. 1B, P.O. Box 457, Port Ewen, N.Y

MONEY for MEN ALL DATA FREE

THE PLASTEX Industry needs manufacturers on small scale and for big production of Lamp and Clock Stands, Art Goods and Novelties in Plastex and Marble imitation. Experience unnecessary. ½c material makes regular 10c store sellers. Rubber moulds furnished for speed production. Small investment brings good returns. We are now placing big chain store orders with manufacturers. Ambitious men have chance for real prosperity. Our Free booklet will interest and benefit you.

PLASTEX INDUSTRIES, Dept. 2, 3400 Third Ave., New York 56, N. Y.

"How to MAKE MONEY with Simple CARTOONS"

A book everyone who likes to draw should have. It is free; no obligation. Simply address

FREE BOOK

CARTOONISTS' EXCHANGE

Dept. 195D Pleasant Hill, Ohio

Want a Government Job?

START AS HIGH AS $4,205.00 A YEAR

Prepare NOW for next exams

MEN—WOMEN Thousands of appointments being made. 36-page Book FREE.

Mail Coupon Today. SURE.

COUPON

FRANKLIN INSTITUTE (Not Gov't. Controlled)
Dept. C-90, Rochester 4, N. Y.
Sirs: Rush FREE: (1) 36-page book with list of U. S. Gov't. Jobs; (2) Tell me how to qualify.

Name ..... Age ....

Address .....

Copyrighted material

URANIUM = $ $ $

SEI* = URANIUM

All and *Only*

UNCONDITIONALLY GUARANTEED

geiger and scintillation counters

—UAC approved

GUN TYPE COUNTER
Prices start from $29.95

THE SCINTILLATOR
$495.00

*SEI—scientifically engineered instruments...are necessary to effectively locate commercial (profitable) deposits of uranium. WRITE TODAY for free information, catalogs, maps, and newly developed prospecting techniques that put more $ $ $ in your pocket.

UNIVERSAL ATOMICS CORPORATION

Dept. P5, 527 Lexington Ave., New York 17, N. Y.

AMAZING NEW POCKET SIZE RADIO

Really Works—Small as a Pack of Cigarettes!

FITS IN ANY POCKET OR PURSE—GETS LOCAL RADIO STATIONS WITH CLEAR BELL-LIKE TONE—NO STATIC OR INTERFERENCE! NEEDS NO TUBES, BATTERIES OR COMPLICATED HOOKUPS! NO AC PLUG INS! Nothing to wear out. Thousands of users—many report years of service. Uses new crystal diode and HI-Q coil. SELF-CONTAINED SPEAKER PHONE. Just the tiny radio to take with you ANYWHERE YOU GO—ON TRIPS, VISITING, ETC.—for real fun and enjoyment—ANYTIME. **SEND ONLY $1.00** (bill, ck., mo.) and pay postman $3.99 C.O.D. postage or send $4.99 for p.p. delivery. COMPLETE READY TO LISTEN.

MIDWAY CO., Dept. PPS-5, Kearney, Nebr.

BUILD LUGGAGE AT HOME! WE SELL YOUR PRODUCTS!

Only New Home Money-Making Plan in Years!

Make Luggage and cases for traveling, photographers, musicians, salesmen, electronics, tools, portables, 1001 other items. Also repair Luggage. No special equipment needed. BIG Profits. We supply complete instructions, materials—everything. Write for free details and Business Plan. ABARSI CASECRAFT, Dept. H-5, 805 W. Sunset Blvd., Los Angeles 12, Calif.

BUILD 15 RADIOS

AT HOME WITH THE NEW IMPROVED 1955 PROGRESSIVE RADIO "EDU-KIT"

ONLY **$19.95** COMPLETE

- Excellent Background for Television
- Absolutely No Knowledge of Radio Necessary
- No Additional Parts Needed, except solder & wire
- Learn Radio Construction, Theory, Servicing
- Build Receiver, Transmitter, Code Oscillator, Signal Tracer Circuits
- Free Soldering Iron, Tester, TV Book, Hi-Fi Guide, Quiz Book
- 30 Day Money-Back Guarantee

MAIL TODAY—Order shipped same day received.

30-Day Money-Back Guarantee. INCLUDE ALL FREE EXTRAS.

☐ "EDU-KIT" Postpaid. I enclose full payment of $19.95
☐ "EDU-KIT" COD—I will pay $19.95 plus postage
☐ Outside USA: Enclose $20.95. "Edu-Kit" sent postpaid.
☐ Outside USA: 210-250V. AC/DC Adapter. Enclose $2.50
☐ FREE Radio-TV Servicing Literature. No obligation

NAME _____

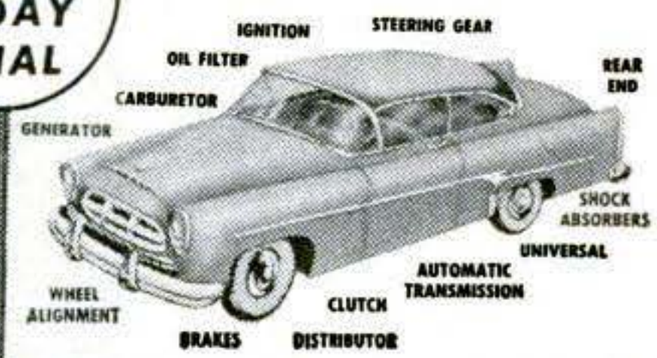
ADDRESS _____

PROGRESSIVE "EDU-KITS" INC.
Room 529A, Progressive Bldg.
497 UNION AVE.
Brooklyn 11, N. Y.
(On shipments to New York City address add 60c sales tax)

LET CAR EXPERTS GUIDE YOUR HANDS THROUGH ANY AUTO REPAIR

QUICKLY-- EASILY--RIGHT!

FREE 7-DAY TRIAL



SUPPOSE you had an automobile factory engineer standing right beside you . . . guiding your hands through every step of even the toughest car repair jobs! Think how you'd "whiz through" every job! No wonder, then, 2,000,000 MOTOR'S Auto Manuals have been sold. No wonder so many thousands of beginners and expert mechanics alike are *already* using MOTOR'S brand-new AUTO REPAIR MANUAL. It shows you, *in step-by-step words and pictures*, factory-approved repair procedures for fixing ANY part of ANY car, 1940 through 1955!

No guesswork! MOTOR'S Manual "starts from scratch" — leads you through entire job with easy step-by-step directions, clear "how-to" pictures. Tells WHERE to start, what TOOLS to use, how to remove, repair and replace parts. You CAN'T go wrong.

Covers 737 Models —1940 thru 1955

All These Makes

Buick	Hudson
Cadillac	Kaiser
Chevrolet	Lincoln
Chrysler	Mercury
Crosley	Nash
De Soto	Oldsmobile
Dodge	Packard
Ford	Plymouth
Frazer	Pontiac
Henry J	Studebaker
Willys	

2,000,000 Copies Sold!

1000 Big ILLUSTRATED Pages

NEW, REVISED, ENLARGED Edition contains the "meat" from over 160 OFFICIAL shop manuals—simplified for YOU in Over 1,000 big pages. 23,436 essential repair specifications on 737 chassis car models. More than 2,900 "this-is-how" pictures. 225,000 service and repair facts. Leads beginners every step of the way. Time-saving factory repair procedures for experts. Used by U. S. Army and Navy.

Try Book FREE 7 Days

SEND NO MONEY! Pay postman nothing. Make Manual PROVE to you what it's got. Unless you agree this is the greatest time and work saver you've ever seen —return book in 7 days and pay nothing. Mail coupon today to: MOTOR Book Dept., Desk 25X, 250 W. 55th St., New York 19, N.Y.

Same FREE Offer On MOTOR'S Truck and Tractor Manual

Covers EVERY job on EVERY popular make gasoline truck, tractor made from 1946 thru 1954. FREE 7-Day Trial. Check proper box in coupon.

MAIL COUPON NOW FOR 7-DAY FREE TRIAL

MOTOR BOOK DEPT.
Desk 25X, 250 W. 55th St., New York 19, N. Y.

Rush to me at once (check box opposite book you want):

☐ **MOTOR'S** *New* **AUTO REPAIR MANUAL.** If O.K., I will remit $2 in 7 days. $2 monthly for 2 months and a final payment of 95¢ (plus 35¢ delivery charges) one month after that. Otherwise I will return the book postpaid in 7 days. *(Foreign price, remit $9 in cash with order.)*

☐ **MOTOR'S** *New* **TRUCK & TRACTOR REPAIR MANUAL.** If O.K., I will remit $2 in 7 days, and $2 monthly for 3 months, plus 35¢ delivery charges with final payment. Otherwise I will return book postpaid in 7 days. *(Foreign price, remit $10 cash with order.)*

Print Name..... Age.....

Address.....

City..... State.....

☐ **Check box and save 35¢ delivery charge** by enclosing WITH coupon entire payment of $6.95 for Auto Repair Manual (or $8 for Truck & Tractor Repair Manual.) Same return-refund privilege.

Copyrighted material

DRAFTSMEN

CASH BIG PAY CHECKS!

Train Now for more success, greater security

LEARN AT HOME IN SPARE TIME
(or at college in Chicago)

Check the want ads in any newspaper—SEE the big-pay opportunities open to you as a draftsman. What's more, you can learn this well-paid, prestige profession at home—quickly, easily! No special talent needed. Get complete, step-by-step Chicago Tech lessons in the mail, spend a few pleasant hours studying each week. In a short time you'll be a well-trained draftsman, ready to take your pick of many good jobs. Act now!

FREE INFORMATION—MAIL COUPON TODAY!
Get FREE TRIAL LESSON plus information about C.T.C. practical training. Learn what successful Chicago Tech graduates say about high pay and opportunities in drafting. No charge, or obligation.

CHICAGO TECHNICAL COLLEGE

E-223 Tech Bldg., 2000 So. Michigan Ave.
Chicago 16, Illinois
Mail me FREE Lesson with information about big opportunities in DRAFTING.

Name.....Age.....

Address.....

City.....Zone....State.....

TOUCH UP nicks, scratches, bruises with "MATCH-IT" spray bomb lacquer mixed-to-match YOUR CAR'S COLOR!

WE GUARANTEE to match any original finish on any model from 1940 on!

Now you can remove unsightly stone bruises, door nicks, scratches and other finish blemishes . . . or paint fender skirts, sun visors, etc., without paying for an expensive commercial job!
YOU JUST PUSH A BUTTON and MATCH-IT'S fine mist nozzle applies a high gloss lacquer that dries in a few minutes to a gleaming luster without rubbing.
CUSTOM MATCHED to your car's finish. The makers of MATCH-IT use the same paint formulas as were applied by the manufacturer in the original finish on *your* car. *We guarantee a perfect match to within one percent* of original factory color—*Not repaints!* (Note: where primer is needed, order MATCH-IT automotive primer, 12 oz. can $3.00.)
PREVENT destructive rust and corrosion—keep your car gleaming new! Just write the *make, year* and *exact* manufacturer's original color of your car, on a piece of paper, and enclose it with a check or M.O. for $3.95 addressed to:

MILWAUKEE paint products co., inc.
Dept. S-3, 2600 W. North Ave., Milwaukee 5, Wis.

---

27 YEARS OF SINCERITY • CHECK MY GUARANTEE & PRICES
Foolish to Pay More—Dangerous to Pay Less! Tiny Overhead—Tiny Profits

FREE This pictured handsome tire ash tray included with 2 or more tires!
If you buy 2 or more **TIRES** you get an extra tire FREE. Be wise! Why buy only one!
(not W.W., Truck, or "Co. Release" tires)

CHOOSE YOUR FAVORITE BRAND Family-Safe. Partially Used. Not retreads or recaps.

GOODYEAR Firestone

U.S. GOODRICH & OTHERS. 35 MONTH GUAR. & FREE TUBE

600-16	$4.31	640-15	$4.11	760-15	$4.71	820-15	$5.31
650-16	4.71	670-15	4.41	800-15	5.11	700-15	4.51
700-16	5.21	710-15	4.41	SPECIAL WHITE WALLS $2 Extra			

HEAVY DUTY TRUCK TIRES. 35 MONTH GUAR. & FREE TUBE

600-20	$7.91	825-20	$16.71	600-16(6)	$5.81	750-16	$8.51
650-20	8.51	900-20	15.61	650-16(6)	6.51	700-17	7.91
700-20	9.11	1000-20	15.81	700-16(6)	7.21	750-17	9.91
750-20	9.91	1100-20	17.51	700-15(6)	7.21	1000-22	16.81

SPECIAL! TIRES RELEASED BY CO. ADJUSTERS (just used slightly)
If a tire proves defective in 36 months I charge you nothing. | World's top value and FREE TUBE! **$7.86** any car

MARVIN BLATT 609 Spring Garden St. Philadelphia, Pa.

MILITARY MUD-GRIP TIRES

AA Guar. 20 Mos		AAA 36 Months	
900-16	$10.21	900-16	$13.91
750-20	9.71	750-20	13.51

Send Ck. or M.O. & this ad for instant shipment. FOB Phila. I personally select your tires—as if my future depended on it. Thousands of tires shipped the world over! Read that top line again.

PIMPLES*

CUTICURA Relieves Faster

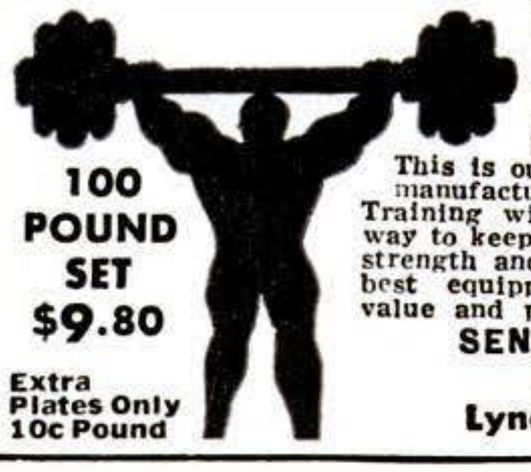
Many doctors report results in *1 to 3 days* with new sensational CUTICURA MEDICATED LIQUID. This greaseless, fast-drying, "invisible" antiseptic soothes as it helps heal. It works day and night, even under make-up. 60¢ at druggists. If your druggist hasn't it **don't waste money on substitutes** but send us 10¢ for generous trial size. *externally caused

CUTICURA, Dept. 15EX, Malden 48, Mass.

New Low Cost Electric Water Heater Gives You HOT WATER AUTOMATICALLY FROM YOUR PRESENT TANK!

Lektromatic changes your water heater into automatic unit. Install in 10 min without draining. Screw-in, plug-in and save $75 to $150. Clean, safe as electric light. Temp. adjusts 30 thru 180 degrees. Thread is 1" pipe size. UL approved switch-thermostat. 1250 w 110 v $19.95 (2000 w 220 v. $21 95) Send payment and save shipg. or order COD. 10 day free trial 1 yr full guarantee.

Lektromatic Mfg. Co., Dept. PS-5
852 Rogers Ave., Brooklyn 26, N. Y.



BARBELLS

100 POUND SET $9.80
Extra Plates Only 10c Pound

140-Pound, **CHROME DELUXE** Barbell-Dumbbell set only **$16.80.**
This is our feature set and is the finest ever manufactured.
Training with adjustable weight is the **BEST** way to keep fit; the **ONLY** way to develop great strength and a perfect body. As the oldest and best equipped barbell company, BUR gives value and prices no one can equal.

SEND FOR FREE CATALOG.
BUR BARBELL CO.
Lyndhurst 5, New Jersey

FREE BOAT KIT CATALOG Write:

8' to 14' Models from $39.95 incl. freight

- Assemble your own boat
- No experience necessary
- Save 1/2 to 2/3 "factory built" prices

12 ft. Runabout Pictured

Marine Hardware, Trailers, Fiberglas

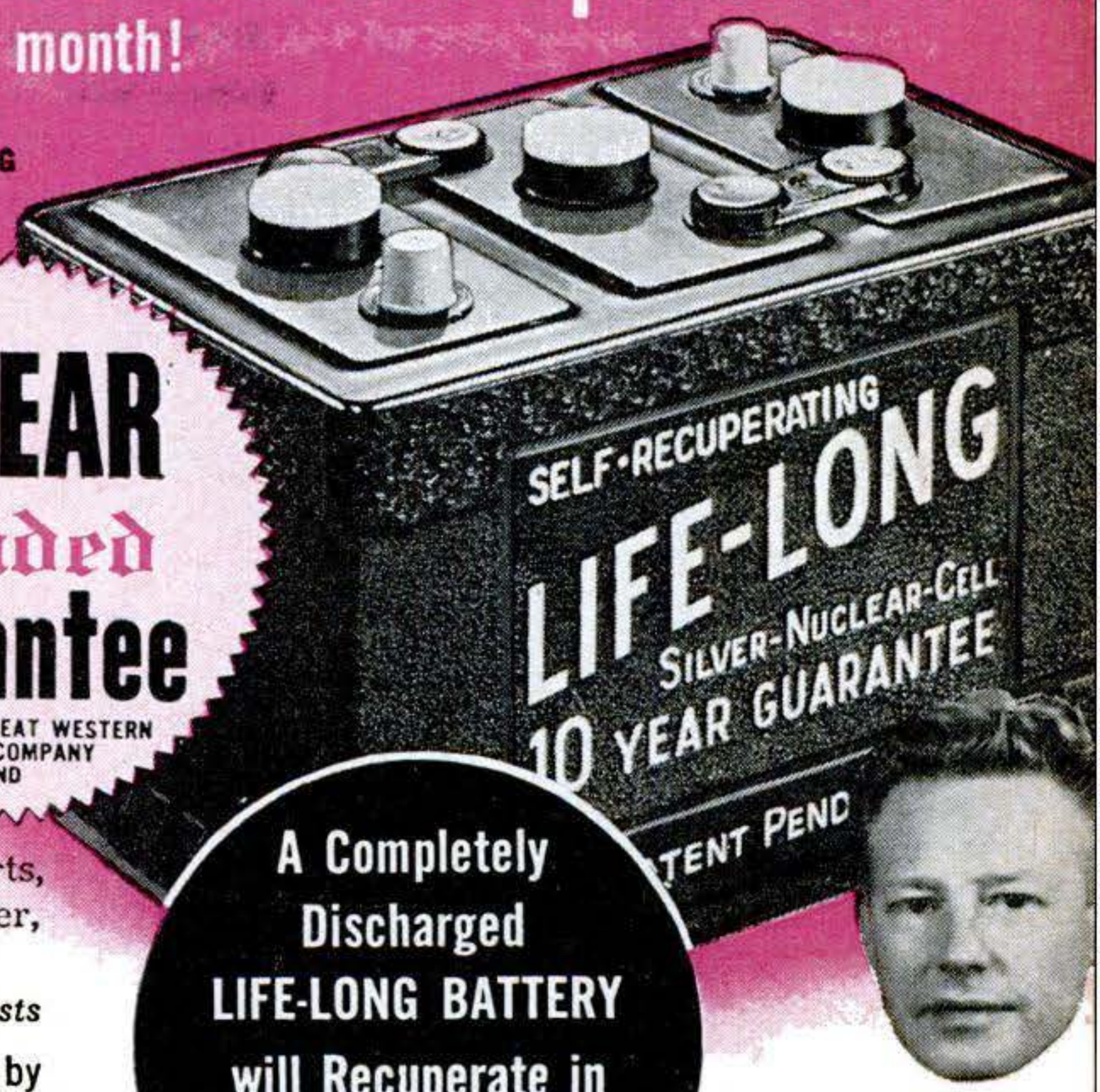
LUGER INDUSTRIES DEPT. A 4452 NICOLLET AVE. MINNEAPOLIS 9, MINN.

Copyrighted material

NEW TYPE BATTERY makes 100,000 STARTS per MONTH

month after month!

PATENT PENDING
#408439



10 YEAR Bonded Guarantee
BACKED BY GREAT WESTERN ESCROW COMPANY BOND

"TORTURE TESTS"

by authorized member of American Council of Commercial Laboratories demonstrate amazing performance* of Life-Long—the only battery in the world with a TEN-YEAR BONDED GUARANTEE featuring free replacement or money back. These independent laboratory reports prove what you yourself will soon discover in your own car .. that your Life-Long Battery gives you faster starts, a hotter spark, brighter lights, sure starts in any weather, ample power for extra electrical equipment.

**Let us send you details of these independent laboratory tests*

OVERCHARGE TEST . . . Life-Long exceeds SAE requirements by 400%, eliminating all possibility of burn-outs through overcharge.
R.P.M. TEST . . . Life-Long spins your engine 20% faster.
COLD TEST . . . Life-Long operates efficiently at 70 degrees below zero
HIGH TEMPERATURE TEST . . . Life-Long operates efficiently at blistering temperature.

A Completely Discharged LIFE-LONG BATTERY will Recuperate in ONE MINUTE

I will pay you $1,000 if you can disprove this claim!
J. M. Watt
PRESIDENT
LIFE-LONG BATTERY MFG. CORP.

Tremendous RESERVE POWER

Insures You a TROUBLE-FREE BATTERY!

You insist on "reserve" horsepower in your motor. You need extra emergency power in your battery, too, as insurance against costly, embarrassing battery failure. You *get* that reserve power with Life-Long— the only battery backed by a 10-year *Bonded* Guarantee.

TRY IT!

With your ignition switch off and your headlights on, step on your starter until the battery is so run down that it won't start the engine or light the lights. Now wait **one minute** with headlights off—then step on the starter. The LIFE-LONG BATTERY will start your car instantly with a surge of power that it has regained during that brief 60-second interval! Make this test as many times as you like! One LIFE-LONG dealer has demonstrated this amazing recuperative ability of LIFE-LONG BATTERIES **over 500 times** with the same battery, with no sign of weakening, yet!

LIFE LONG

COSTS NO MORE
You Can Now Buy a LIFE-LONG TEN-YEAR BATTERY for less than the cost of an ordinary lead acid battery. Look at the money you save!
All 6-volt
LIFE-LONG AUTO BATTERIES—$29.95
All 12-volt
LIFE-LONG AUTO BATTERIES—$34.95
A so-called "First Quality" three-year battery costs you $10.00 a year.
A LIFE-LONG TEN-YEAR BATTERY costs you only $3.00 a year.

Large corporations, Fire Departments, Police Departments, Taxicab Companies in every part of the country, as well as the U. S. Government and many foreign countries are now buying LIFE-LONG BATTERIES. • LIFE-LONG manufactures a complete line of Industrial, Commercial, Marine and Motorcycle batteries. Prices on request.

IF NO DEALER NEAR YOU, USE COUPON

BUY NOW! UNDER MONEY-BACK GUARANTEE

DISTRIBUTOR TERRITORY OPEN

Life-Long Batteries, sold all over U. S. and abroad, are protected by exclusive patents. Some territories are still open for men who recognize this big profit opportunity. Write for details.

Reader's Digest

Write to Life-Long for a free copy of a Reader's Digest article entitled "THE U. S. FINALLY DISCOVERS THE LIFETIME BATTERY."

LIFE-LONG BATTERY MFG. CORP., DEPT. PS-55
11766 W. Pico Blvd., Los Angeles 64, California

Please ship Life-Long Battery, 10-year guarantee:
6 volt automotive battery ($29.95 including tax)
12 volt automotive battery ($34.95 including tax)

for _____
Make & Model, Year of Car

Cash, check or money order enclosed. Life-Long pays all delivery costs to your door.

Name _____

Address _____

City _____ Zone ____ State _____

Copyrighted material

... TURN CONCRETE INTO GOLD!

MOTOR DRIVEN

R. L. T. of New York City reports: "MY GENERAL BLOCK MACHINE PAID FOR ITSELF IN FIRST 2 WEEKS!" Hundreds now in use the world over! Write for FREE details today!

MAKE UP TO $75 A DAY IN YOUR OWN BUSINESS

If you want to have your own business — to start a business on your own — here's your big opportunity! New high speed, low cost General block machine produces up to 1,000 concrete blocks a day. Sell all you make to builders, supply houses, and others for homes, factories, buildings, garages. Cash in on the building boom! You can make profits of 100% to 150% — up to $75. a day! General block machine equipped with ½ h.p. electric motor — or can be supplied with gasoline engine — works anywhere, in little space, indoors or out. Operates from ordinary house light socket. Simple, foolproof 3 step operation — so easy a child can do it. Makes superior 3 core blocks any size from 4" to 12". Also makes chimney, sash, corner and other types. Blocks meet any building code anywhere in the country. Materials — sand, water, cement, available anywhere. Simple illustrated operating instructions and mixing formulae for cement and cinder blocks supplied with each machine. Write for FREE folder with full information.

EXTRA *Amazing illustrated book gives floor plans for 6 sensational concrete block bungalows. Tells how to lay blocks, lay out building lines, mix concrete, build steps, porch and concrete floors all at great savings. Written by experts. Can save many times the cost of the machine! Get it now! No strings attached. Send $1.*

BOOK SENT FREE IF YOU BUY MACHINE.
$1 REFUNDED IF YOU BUY LATER.

GENERAL ENGINES CO.
DEPT. S-55 307 HUNTER STREET, GLOUCESTER, N. J.

---

41 Surplus Twist DRILLS $2

Less than 5c each. For hand or electric drills. Brand new genuine higrade, hardened carbon tool steel drills. Sell for up to $6 in the stores. You get about 5 each of the most frequently used sizes from 1/16" through ¼". Tempered cutting edges easily bite through steel, aluminum, iron, wood, or plastic. Each drill hardened and designed to give 1800 drillings. **$2**

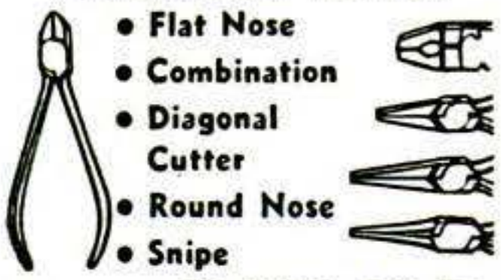
complete set postpaid

MIX PAINT Without Splashing

...in seconds ...with GYROMIX

Simultaneous cutting and stirring action makes old paint factory fresh! 9" stainless steel rod with twin cutting discs rotates, breaking up hard pigment. Thoroughly mixes pigment with vehicle without splashing. Scrapes bottom and sides without injury to cans. Many paint failures are due to improper mixing—be safe with Gyromix. Fits all ¼ inch drills. Fits pint, quart, gallon cans. CLEAN — NEAT —NO MESS: Only **79c** ppd.

ONLY 75c EACH
for the FINEST IMPORTED PRECISION PLIERS



- Flat Nose
- Combination
- Diagonal Cutter
- Round Nose
- Snipe

75c each — all 5 for $3.50

FOR JEWELERS, OPTICAL WORKERS, HOBBYISTS, CRAFTSMEN OF ALL KINDS! These superb German instruments are of drop-forged, heat-treated high quality tool steel, fabricated to most exacting specifications. All over ground and polished to smooth, hard surfaces. Smooth working joints with just the right tension. Jaws meet perfectly to safely and securely hold even the most delicate objects in the hard to reach corners and angles. Each plier is 4" long and a veritable gem of precision and strength.

Plastic Electrical Tape

Far superior to regular friction and rubber tapes. Resists abrasion, water, acids, alkalis and corrosion. Makes a neater job in limited spaces and is easier to apply than friction plus rubber tapes. First quality, guaranteed. Full 30 ft. roll, ¾" wide.

Reg. 98c ea. NOW 2 for $1.00

108 ft. Roll Reg. $2.98— Now $1.69 ppd.

Send check or money order. If C.O.D. fees extra. Money Back Guarantee.

SCOTT-MITCHELL HOUSE, INC.
Dept. MS-58 611 Broadway, N. Y. 12, N. Y.

MAKE EXTRA MONEY **PLASTICS** LEARN AT HOME

LEARN HOW TO MAKE fast-selling PLASTIC NOVELTIES FURNITURE JEWELRY SIGNS TOYS LAMPS

There are RICH OPPORTUNITIES for MEN and WOMEN with "know-how" in Plastics. Interstate's new Plastics course tells and shows how to make hundreds of fast selling items out of Plastics. Gives complete training in fabrication, casting, lamination, molding, internal carving, etc., in simple, easy, step-by-step language and pictures. Plastics and Fabricating Kits for 23 valuable Plastic items come with training at no extra cost. START A PLASTICS BUSINESS OF YOUR OWN. No other industry holds such promise for the future. You can make big money manufacturing novelties, toys, signs, etc., in your own home in spare or full time. Don't wait! Learn NOW how Interstate's Plastics Training qualifies you for success in the Plastics field.

WRITE TODAY!

PLASTICS AND SUPPLIES FURNISHED FOR 23 VALUABLE PROJECTS

INTERSTATE TRAINING SERVICE
Dept. C-2-E Portland 13, Oregon

BECOME AN EXPERT IN TRAFFIC

Traffic men earn $4,000 to $10,000 and up. Thousands of firms need experts on rates, tariffs, regulations. We train you thoroly in spare time at home for executive traffic jobs. Personal training under traffic authorities. Placement counsel and help. Write for free 48-page book "Traffic Management—the Fast Growing Profession."

LASALLE Extension University, 417 So. Dearborn St.
A Correspondence Institution, Dept. 583T, Chicago 5, Ill.

FREE! 100 FOREIGN STAMPS

All genuine, unpicked, unsorted — just as received from Europe, Asia, Africa, Near East, Far East — from everywhere! Plus a beautiful souvenir of World's Rarest Stamp and our valuable "Stamp Collector's Guide". Other valuable offers also included for your FREE inspection!

Send 10c for postage and handling to
GARCELON STAMP CO., DEPT. PS5M
CALAIS, MAINE

Secrets of VENTRILOQUISM Now Revealed!

Easy to learn in 60 to 90 days with our Home Study Course. **RESULTS GUARANTEED.** Make Money! Be Popular! Have Fun! Big Opportunity! Radio, Television, Stage Appearances! For Free Information regarding price and terms, WRITE. You must state your age. Dummy Catalog 25c.

FRED MAHER SCHOOL OF VENTRILOQUISM
Box 36, Studio PS5, Kensington Station
Detroit 24, Michigan

EARN WHILE YOU LEARN

UPHOLSTERY
BE YOUR OWN BOSS

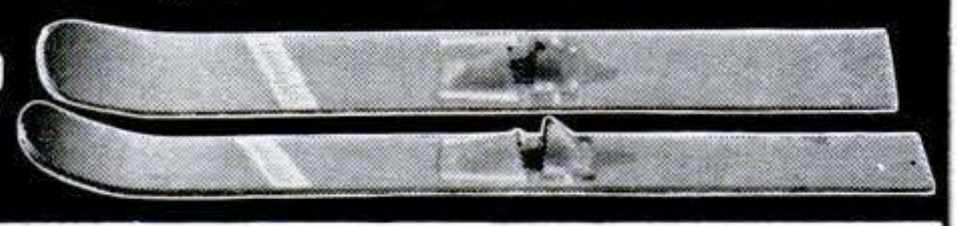
AT HOME, earn right off. Get a better job, be your own boss. UTS easy DO-IT course teaches you professional upholstery, reupholstery, slipcovers, drapery. **FREE** tools, frames, materials—you make 3 pieces of beautiful upholstered furniture with slip covers.

APPROVED FOR KOREAN VETERANS

Free Illustrated Book—SAMPLE LESSON, Write Upholstery Trades School, Dept. DE-1609, 721 Broadway, New York 3, N. Y.

SAVE 1/2 on WATER SKIS

$15.30



Simply assemble and finish our new water ski kit and you have a pair of skis worth twice the price of the kit. Skis are 7 ply moulded plywood, 67½" long, 7" wide, 9/16" thick. Sturdy rubber foot pieces. All parts plus instructions included — $15.30. Order from your Michigan dealer or MICHIGAN WHEEL CO., Dept. PS-95, Grand Rapids, Mich. C.O.D. orders accepted.

Copyrighted material

Real DIESEL ENGINE FULLY ASSEMBLED 1/7 H.P.

A perfect power plant for planes, boats, race cars

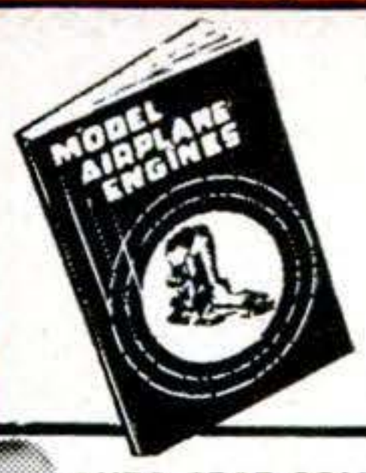
ACTUAL SIZE

Over 100,000 sold at a higher price

YOURS AT A NEW LOW, LOW PRICE

NOW $1.95
Plus 5¢ Postage

Enjoy hours of fun pursuing your hobby with DEEZIL . . . the real diesel engine that runs at 7500 RPM and produces 1/7 HP. It weighs only 5 oz., is compact, rugged, streamlined. Starts quickly. Simple to install. Factory tested. Easy-to-follow operating instructions.



SPECIAL!

196-PAGE BOOK ON MODEL ENGINES!
18 easy-to-read chapters on model engines covering everything hobbyists should know. Tells you how to operate, "hop-up," improve, assemble and disassemble the engine. Special chapters also devoted to carburetion, engine performance, trouble-shooting and many other pages chock-full of interesting information. **ONLY $1.00 POSTPAID**

AUTO SEAT COVER (any car)

Long-lasting first-quality fabric. Installed in minutes. In grey, green, blue. FOR SOLID OR SPLIT BACK SEATS. Be sure to specify type and color. *Value-priced at only $3.95 postpaid*

Vinyl Plastic PORTABLE GARAGE

Cover any car, anywhere, in seconds. Protects finish; keeps rain, dirt and sun away. Durably constructed. Elasticized bottom. *$10 value . . . NOW only $6.95 postpaid.*

GENUINE "DEEZIL" ACCESSORIES—For perfect performance order genuine DEEZIL accessories listed in order coupon (below):

DEEZIL ENGINE & ACCESSORIES AVAILABLE FROM GOTHAM ONLY. ORDER TODAY

GOTHAM HOBBY CORP., Dept. S, 107 E. 126th St., New York 35, N. Y.
Please send me the following postpaid:

Quan.	*Item*		*Amount*	*Quan.*	*Item*		*Amount*
	DIESEL ENGINE	$2.00	$.....		196-Page book on MODEL ENGINES	$1.00	$.....
	Portable Garage	$6.95	$.....		Auto Seat Cover Color , Type.	$3.95	$.....
	Chess Computer	$1.00	$.....				

GENUINE DEEZIL ACCESSORIES

	Prop (Free Flight)	35¢	$.....		Flywheel (boat or car)	75¢	$.....
	Shut-Off Valve	$1.25	$.....		Tank	50¢	$.....
	Test Mount	$1.25	$.....		Spinner	75¢	$.....
	Fuel Pump	75¢	$.....		Control Wire	75¢	$.....
	Fuelmix (sent by Express Collect. No C.O.D.)	$1.00	$.....		Control Handle	$1.00	$.....
					Electric Motor	$1.95	$.....
			ADD TOTAL				ADD TOTAL

Name .....

Address .....

City ..... Zone ..... State .....

☐ **FREE** 196-page book on model engines with every purchase of $5 or more.

CHESS COMPUTER

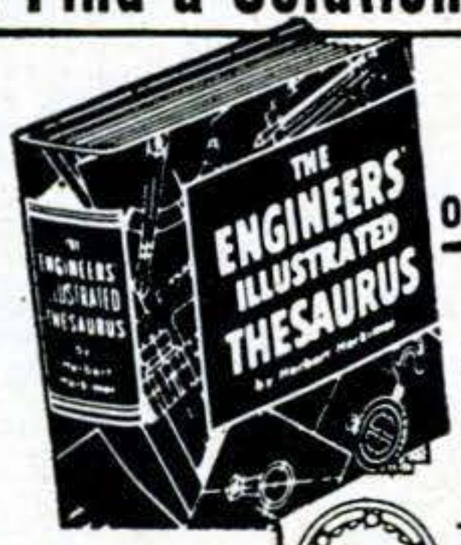
A handy reference calculator for experts and beginners gives the opening moves of the 16 leading chess variations. No easier way to become a chess winner! only $1.00 postpaid

GOTHAM HOBBY CORP.
***Dept. S*, 107 E. 126th St.**
New York 35, N. Y.
Serving the hobbyist for over 20 years.

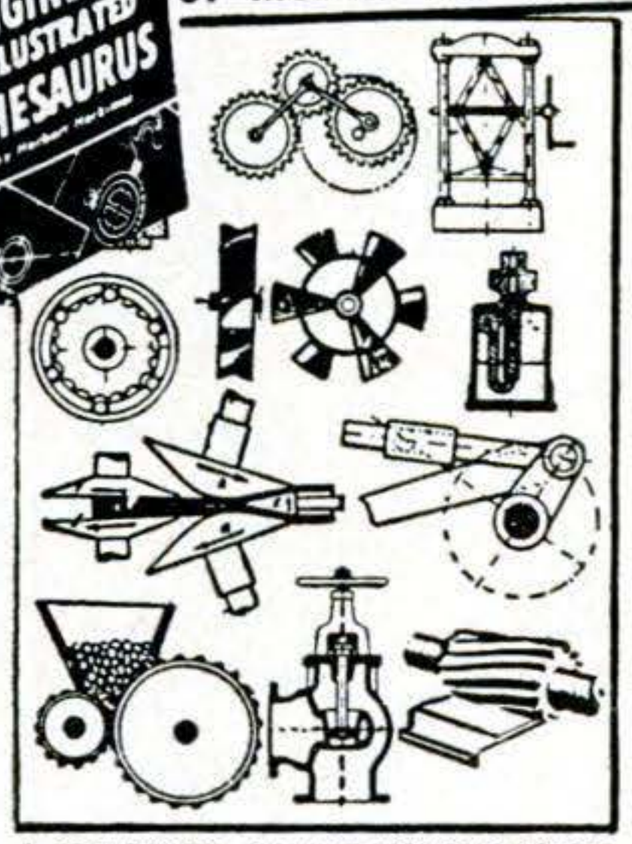
Here You Can Find a Solution to Practically ANY MECHANICAL PROBLEM!

PARTIAL CONTENTS:

ccumulators
ir Conditioners
larms
mplifiers
nchors
nti-Friction
affles
all Joints
earings
ed Plates
lowers
rakes
urners
ams
hains
hain Gears
hecks
hucks
ircular Motions
lamps
leaners
lutches
ompressed Air
Power
onnecting Rods
onveyors
ooling
otters
ounters
overs
ranes
ranks
rushing
utting
erricks
iesel Power
rilling
lectric Power
lectron Tubes
levators
ngines
xpandors
asteners
eeders
ilters
Gauges
Gears
Generators
Governors
Grinders
Grips
Guides
Heating
Humidifiers
Hydraulic Power
Indicators
Infra-Red
Keys
Levers
Loaders
Links
Locks
Lubricators
Magnetism
Measuring
speed
heat
pressure
Mixing
Motors
Nozzles
Parallel Motions
Pawls
Pipes
Pivots
Propulsions
Pumps
Raisings
Ratchets
Refrigeration
Reciprocating Motion
Regulators
Rocket Propulsion
Safety Devices
Sanitation Devices
Scales
Sea Wave Power
Separators
Shafting
Shifting Gears
Shields
Shock Absorbers
Sifting
Signals
Slides
Slings
Sounds
Springs
Startings
Steam Power
Stokers
Swivels
Striking
Sound Receivers
Tappets
Thermostats
Traps
Valves
Vaporizers
Washing
Winding
etc.



A BOOK with OVER 8000 ILLUSTRATIONS WITH DESCRIPTIONS of Mechanical Movements, Devices, Contrivances and Details



A copy belongs in every reference library, school—every shop, plant, factory—with every machinist, engineer, student, inventor.

If you work with machinery of any kind, you may be called upon to devise or improve some job or motion. To do this, you either have to rely on memory, experience or ingenuity. Here in this new book—THE ENGINEERS' THESAURUS by Herbert Herkimer—you will find over 8000 IDEAS and SUGGESTIONS for accomplishing any kind of motion, force or work! It is a compilation of the contrivances, parts, details, tools, machines, devices and means—devised and developed by countless engineers, machinists and inventors over the years—to effect any motion or task. The material has been painstakingly assembled and classified, from many sources—research books, engineering brochures, patent drawings, catalogs, etc. It is, by far, the *largest collection* ever gathered in one book—and the only one which shows, side by side, the many different means and methods for accomplishing any particular task!

Each item, each device, each method is illustrated—there are 8000 such illustrations—and each carries a pertinent description of its makeup and function. THE ENGINEERS' THESAURUS is a monumental work. It is 5½" x 8½", 580 pages, printed on coated paper, cloth-bound.

Order By Mail

Book will be sent promptly. *No one has ever asked for money back*, but our guarantee of money-back-if-not-satisfied stands.

PIONEER PUBLICATIONS, Dept. P-5
1790 Broadway, New York 19, N. Y.

Price only $5.95

Send me a copy of THE ENGINEERS' THESAURUS by Herbert Herkimer. If not satisfied, can return book for refund.

☐ I enclose $5.95; send book postpaid.
☐ Send book c.o.d. for $5.95 plus 62c total delivery charges.
☐ Send book and bill us, $5.95 plus 16c postage.
(This privilege only to concerns with Dun & Bradstreet rating.)

Name .....
Company .....
Address .....
City ..... Zone .... State .....

Copyrighted material

Get this FREE! new book on MOBILE HOMES

• Most complete free book on trailer coaches ever offered—116 pages in all! Pictures and specifications of the newest models by the leading manufacturers! Beautiful homes you can take with you wherever you go, $2000 to $6500 *completely furnished!*

Mobile Homes Manufacturers Assn.,
Dept. PS-55, 20 N. Wacker Drive,
Chicago 6, Illinois

Please send free copy of "Mobile Life".

Name _____

Street _____

City _____ *Zone* _____ *State* _____

BENJAMIN SUPER CO_2 GAS CARBINE-$16.50

NEWEST TARGET RIFLE – 22 **IDEAL FOR SMALL GAME**

ECONOMICAL
SAFE–NON-TOXIC
ACCURATE–CONVENIENT

PRACTICAL. Easy to operate – No spring recoil – No pumping. Uses low cost Soda Cartridges Cal. .22 Benjamin H-C Pellets and Darts.

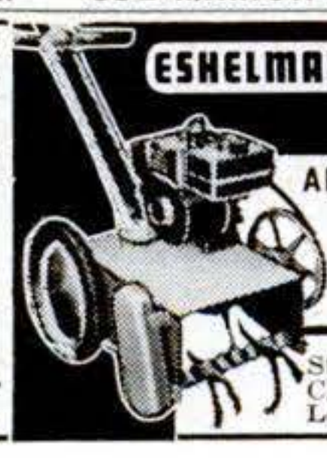
New Benjamin CO_2 *Rocket* Gas Pistol $15.00

WRITE FOR FREE ILLUSTRATED FOLDER OF ALL MODELS BENJAMIN AIR RIFLES AND BENJAMIN AIR PISTOLS
BENJAMIN AIR RIFLE CO.
852 MARION ST., ST. LOUIS 4, MO. U.S.A.

Also ADULT 2 Passenger "Eshelman" SPORT CAR

1/5 the cost of any other auto

70 Miles per Gal. *Free Catalog.*



ESHELMAN ROTARY TILLER
FOR BETTER GARDENS

Also Walking Tractors from $69

Replaces plowing, discing, cultivating. Turns virgin ground into Garden Bed in 1 operation. Women can operate. Free Catalog. **Eshelman,** Dept. T-45, 109 Light St., Balto., Md.; 333 N. Mich. Ave., Chicago, Ill.; 6087 Sunset Blvd., Los Angeles, California.

MAKE MONEY 90 WAYS IN PHOTOGRAPHY

A profitable, action-packed career or steady, sparetime income can be yours in photography. Start earning at once as you learn to make money 90 ways with your camera. Our famous, low-cost LEARN-BY-DOING method and PERSONAL guidance train you quickly, easily at home! Big FREE book gives all the exciting details. Write TODAY! Our 45th year. Co-ed. Also Resident Courses.

Approved for Veterans.

NEW YORK INSTITUTE OF PHOTOGRAPHY
Dept. 5, 10 West 33 Street, New York 1, N.Y.

SEND FOR FREE BOOK

RUPTURED

BE *FREE* FROM TRUSS SLAVERY

NOW there is a new modern **Non-Surgical** treatment that permanently corrects rupture. These **Non-Surgical** treatments are so certain, that a Lifetime Certificate of Assurance is given. Write today for our New FREE Book that gives facts that may save you painful and expensive surgery, and tells **how non-surgically** you may again work, live, play and love and enjoy life in the manner you desire. There is no obligation.

Excelsior Hernia Clinic Dept. 3705 Excelsior Springs, Mo.

MAKE MORE MONEY IN AVIATION

SAVE 2 YEARS GETTING STARTED

Northrop Institute trains you in Aeronautical Engineering or Aircraft and Engine Mechanics, quickly, thoroughly Demand for Northrop graduates exceeds supply. Courses approved for Veterans. WRITE TODAY FOR FREE CATALOG Give age and veteran status.

NORTHROP AERONAUTICAL INSTITUTE
1157 W Arbor Vitae Street, Inglewood 1, California

STUDY INDUSTRIAL DESIGN

You can train at Art Center School in California with practicing-professionals for upper-level jobs in INDUSTRIAL DESIGN. Recent graduates have been added to the staff at General Motors, Chrysler, Raymond Loewy, Henry Dreyfuss, etc. Majors in transportation, general product design, structure, community development, furniture design, packaging, display. 4-year degree courses. Learn to combine imaginative design with technical proficiency, coordinate utility and beauty. Stimulating environment. Field trips. Advantages of mild Southern California climate and nearby holiday spots. Coed. Placement service. Established 24 years. New term begins May 31. Write for catalog.

ART CENTER SCHOOL, Edward J. Adams, Director
5353 WEST THIRD STREET, LOS ANGELES 5, CALIFORNIA

LEARN LOCKSMITHING

Send for **FREE BOOKLET**

Learn this fascinating, profitable trade from experts in your spare time at home!

Age or physical handicap no disadvantage. Year around, steady income. Full or part time. Practical, illustrated lessons. You can make money even while learning! All materials and special tools supplied without extra charge.

LOCKSMITHING INSTITUTE, Dept. PS-65
15 PARK AVENUE RUTHERFORD, N. J.
Lic. by N. J. State Board of Education
Approved for Veterans

I'll Send You This Handsome SAMPLE CASE-FREE

and Show You How to Make Up to $30.00 in a Day

WRITE for this FREE Tailoring Sample Case packed with 150 beautiful, big-value suit and overcoat fabrics. Take orders from friends, fellow-workers, others, for fine quality, made-to-measure clothes. Pocket big cash profits in advance. Because wearing our suits and overcoats brings more orders, we make it easy for you to get your own clothes without 1c cost. No experience is needed. SATISFACTION GUARANTEED. SEND NO MONEY. Rush your name, address, and age—today!

J. C. FIELD & SON, INC., Harrison & Throop Sts.
DEPT. B-1720 CHICAGO 7, ILLINOIS

Copyrighted material

Paint STRIPES with New "PAINT PEN"!

Straight, Curved or Parallel Lines

Use like a fountain pen with any color paint to stripe furniture, bikes, autos, model planes, toys, linoleum, wall board. Beautiful clean, crisp results every time. Can't clog or smear. Also use with glue, tempera, textile paint or ceramic under glaze. Paints on wood, glass, plastic, metals, fabrics and paper. Tool complete with tip for 1/16" stripe only $1.00 postpaid. Other complete tools with following tips, 1/64", 1/32", 3/64", 5/64", 3/32", ⅛"—$1.50 each. Extra tips 75c each. Entire kit with tool and 7 tips—$5.00. A ¼" tip only $1 each. COD's postage collect.

$1.00

DEALERS: Master Paint Striping Tool in display cartons of 1 doz. FAST, Profitable seller. Write for discounts.

HOME CRAFTSMEN! New Paint Striping Tool gives "professional" results every time, simple, easy to use. Send $1.00 now.

MANUFACTURERS: Write today for information about industrial and production striping tools.

New! "DOUBLE-STRIPE" 5 Way Combination Model only $2.95

Double Stripes—one wide and one narrow or two wide or two narrow at the same time.

FREE—Send postcard for complete information —or ORDER NOW... **$2.95**

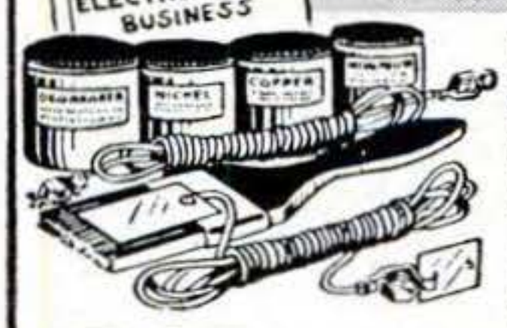
WENDELL MFG. CO., Dept. 25
4234 Lincoln Ave., Chicago 18, Ill.

REPLATE with METAL NO TANKS USED

ELECTROPLATE

Any object in home, shop, garage or start your own well paying electroplating business. **NEW SIMPLIFIED METHOD**

SUCCESS IN THE ELECTROPLATING BUSINESS



NOW, using our **NEW** plating outfit you can electroplate any object large or small. No tanks or rectifiers are used. Yet with this kit you do plating that has the same **DURABILITY** and **LUSTER** as done by the most expensive equip. **DEFINITELY NOT A TOY,** yet **VERY EASY** to use. Even non-metals as leather, etc. can be plated. Complete outfit and full course of instructions on plating metal and non-metal objects with nickel, copper, chrome, gold, etc. plus additional data on starting an electroplating business and obtain all the business you desire and make **BIG MONEY. ONLY $5.95. SEND NO MONEY,** we will send you everything C.O.D. plus postage. OR SEND $5.95 NOW and receive it postpaid. Try it for 30 days, if not completely satisfied we will immediately refund your money. **SEND TODAY!**

M.Z. NATIONAL SALES CO.
Dept. PS-14
113 West 42nd St. N.Y. 36, N.Y.

JUST A FEW OF THE MANY ANY OBJECTS YOU CAN NOW REPLATE

TOOLS, SILVERWARE, JEWELRY, AUTO PARTS, HOUSEHOLD ARTICLES, BABY SHOES, SPORTS EQUIPMENT, INSTRUMENTS, & 1001 ARTICLES.

$35,000 REWARD FOR URANIUM

Here's your chance to "cash in!" Over $2,500,000 in Government Bonuses have been paid for URANIUM discoveries in the past 2 years. Currently $150,000 a month is paid to people just like you.

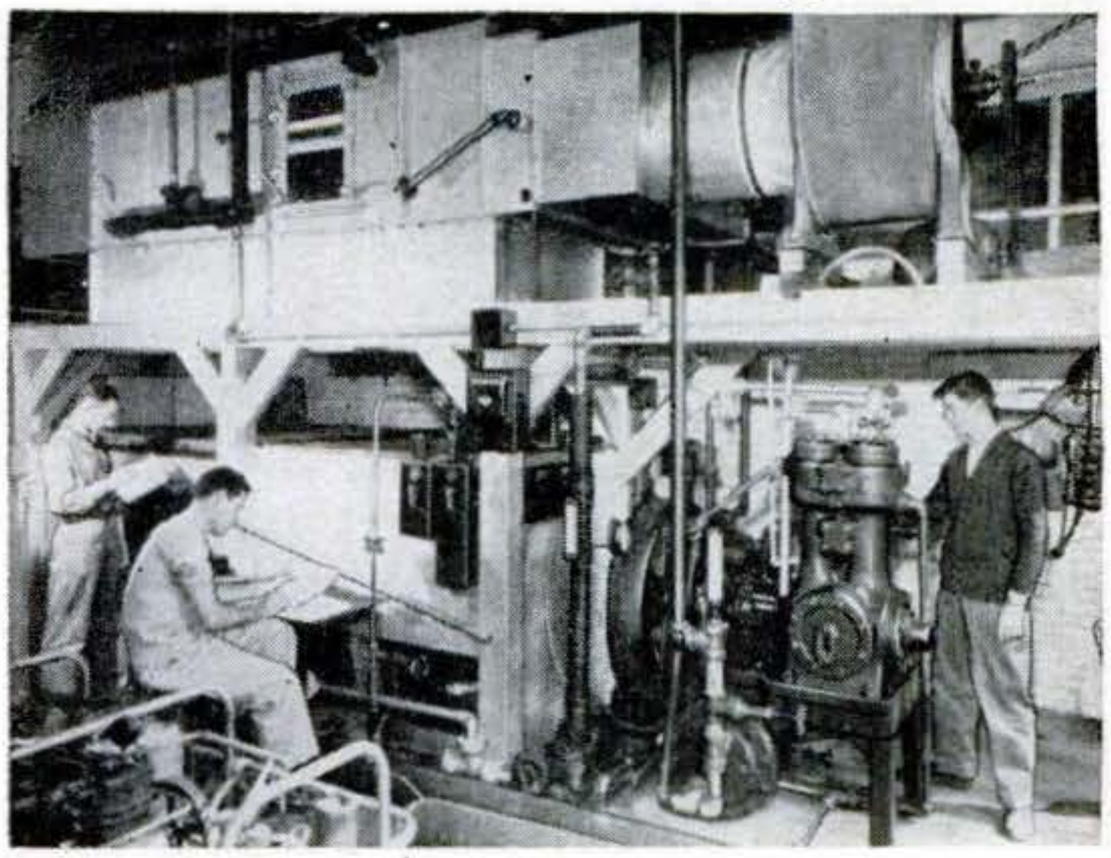
Precision Geiger Counters and Scintillators are the finest instruments made for URANIUM prospecting. These highly sensitive instruments are compact, lightweight and ruggedly built for field use. Prices start at $29.95.

CONTACT YOUR NEAREST DEALER or write direct to factory for FREE 12-PAGE CATALOG, describing URANIUM and Metal detectors.

DEALERS WANTED

PRECISION RADIATION INSTRUMENTS, INC.
2235 PS So. La Brea, Los Angeles 16, California
WORLD'S LARGEST MANUFACTURER OF PORTABLE RADIATION INSTRUMENTS

BECOME A Mechanical Engineer



B. S. Degree in 36 months

Mechanical Engineers hold respected, well-paying, and highly interesting jobs in many fields of industry. You can prepare now . . . for a secure future and a well-paid career as an engineer or engineering technician at the Milwaukee School of Engineering.

Choose from these courses at the Milwaukee School of Engineering

ENGINEERING 36 months, Bachelor of Science Degree
- Mechanical Engineering with a major in Design, Metal Fabrication or Plant Engineering.
- Electrical Engineering with a major in Electronics or Power.

SERVICE 6 to 12 months
- Electricity
- Heating
- Refrigeration
- Welding

TECHNICIAN 12 to 18 months
- Radio and Television
- Electronics
- Electrical Power
- Mechanical Technician
- Air Conditioning
- Welding

General preparatory course — 3 months.

TERMS OPEN JULY, SEPTEMBER, JANUARY, APRIL

Faculty of specialists. Over 50,000 former students. Annual enrollment from 48 states and 23 overseas countries. *Non-profit. 52nd year.* Military, Practical or Academic training evaluated for advanced credit. Approved for Veterans Training. Write for details today.

MILWAUKEE SCHOOL OF ENGINEERING

MS-8A

MILWAUKEE SCHOOL OF ENGINEERING
Dept. PS-555, 1025 N. Milwaukee
Milwaukee 1, Wisconsin

Send free illustrated career booklets ☐ Radio-TV ☐ Mechanical Technology ☐ Electrical Technology

I am interested in _____
(name of course)

Name _____ Age _____

Address _____

City _____ Zone _____ State _____
If veteran, indicate date of discharge _____

Copyrighted material

STOP PING!

PING-OUT gives your car more pep and power while using cheap gas without embarrassing PING or retarding your spark — in fact you can **advance** your spark 5 degrees for **more** power and smoother performance.

U. S. PATENT 2247520

Patented PING-OUT is a vacuum-compensating valve which synchronizes ignition to car speed by delaying over-rapid vacuum. It allows full spark advance when the engine is ready for it. It does not restrict return motion.

PING-OUT takes up where premium gas leaves off. It prevents points from burning, stops distributor "chatter" and gives your engine longer life. Can be installed with no special tools in 2 minutes. **Change ping to power today!**

Only $2.95 postpaid. **10 day money-back guarantee.** No C. O. D.'s please. Send cash, check, or money order today. **$2.95**

SAVE GAS!

ECONOMISER AUTOMATIC CARBURETOR

MIXTURE CONTROL

Automotive Engineers bring you the amazing result of 8 years of gas-saving research to develop an inexpensive method to save gas. Tests show up to a 25% increase in mileage, faster pickup, smoother running engine, perfect idling — **for less than the cost of a half tank of gas!** Users claim it pays for itself in less than 3 weeks of average use. EconOmiser fits all cars, trucks and tractors. Triple chromed for **LIFETIME** use and increased beauty of engine. You are assured of maximum performance and easier starting because it works in conjunction with the automatic spark; easily installed on your carburetor in 2½ minutes. No special tools required. ORDER TODAY! Postpaid — Only **$3.95**
10 day money-back guarantee. No C.O.D.'s please. Send cash, check, or money order to:

AUTOMOTIVE ENGINEERS
Dept. PS-5, 11424 BIONA DR., LOS ANGELES 66, CALIF.

CAVITEX

Superfine Masonry

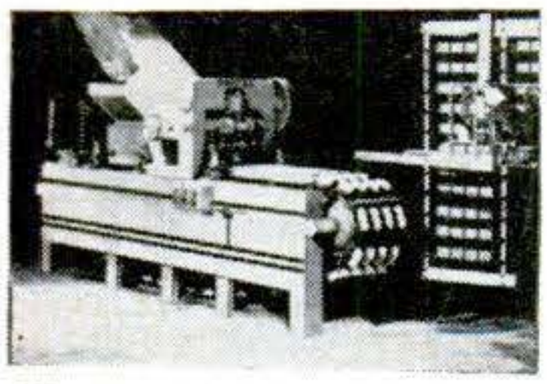
X-5

Manufacturing Rights Now Available in 427 Territories

Cavitex offers building owners the ultimate in masonry at sensationally low costs. Designed in line with today's architecture. Long and low. Large color range. Modular in all dimensions. Strong—safe—enduring. Suited to all types of wall construction—8" solid, cavity, partition, veneer.

As a local manufacturing opportunity, Cavitex has tremendous potentials. Local materials are processed by local labor for local consumption. Vast economies effected. That's why Cavitex has price-appeal to buyers and profit-appeal to producers. Hundreds of territories are open.

Cavitex manufacturers operate in franchise-protected territories and with exclusive privileges. Extensive sponsor cooperation. Basic machinery available on lease. Write or wire for book "Opportunity, Unlimited" and tentative reservation of territory.



W. E. DUNN MFG. CO.
410 W. 24th St., Holland, Mich.
In Canada
Dunn Masonry Machinery, Ltd.
842 Dundas Highway
Cooksville, Ontario

BUILD YOUR OWN HOME

How to build this house step by step. Money saving methods you can adapt to your plans. Know how learned in 55 years on the job boiled down to save you time, money and trouble.

THE BOOK $3.50
TWO SETS BLUE PRINTS OF HOUSE $10.00
OF DOUBLE GARAGE $2.50

BAYARD T. ALLYN
5410 S.E. 94 Ave.
Portland 66, Ore.

FREE! NORTH AMERICA

Collection includes Greenland, Alaska, Confederate States Comm., Canada, Newfoundland. Sensational Canadian issues picturing Indians, moose, walrus, beaver, AND scarce 1851 train stamp. PLUS United States-ancient 19th century gorgeous commemoratives, scarce Telegraph stamp. Many, many others! Send 10c for mailing expenses. Approvals.

Kenmore Stamp Co. Milford E-590, N. H.

. . . Swiss or American

Unique Sweazy System starts you making repairs right away. Develops your skill step-by-step. Teaches **modern methods...** professional short cuts. Learn by **personal attendance** or spare time **home study.** Approved for veterans. **Free Sample Lesson.** No obligation. Write today!

CHICAGO SCHOOL OF WATCHMAKING
2330 Milwaukee, Dept. 455, Chicago 47, Ill.

TASOPE PHOTO-ENGRAVING PLANTS

MATERIAL COST OF THIS CUT ¾¢ SELLING PRICE $1.00 AND UP

Establish your own profitable PHOTO-ENGRAVING business. Make cuts for newspapers, printers, and advertisers. Make etched name plates, plaques etc. Instructions furnished, no experience necessary. Sold direct from factory since 1931. First five hundred cuts sold locally or by mail will pay for plant and pay you well for your time. Write for FREE catalog.

TASOPE, DEPT. PS-5, AURORA, MO.

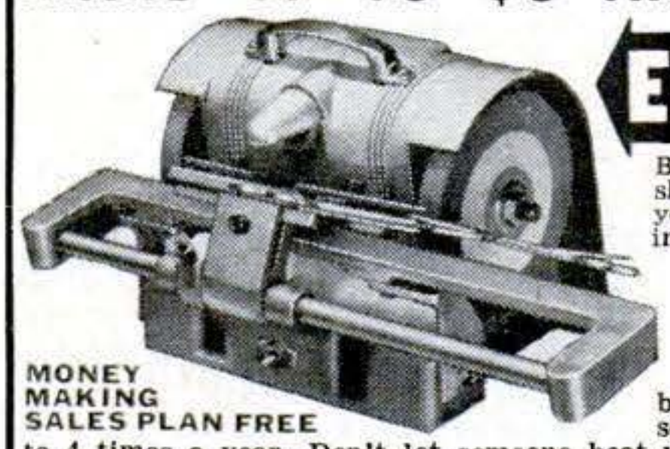
"I HAVE EARNED AN AVERAGE OF $15.20 AN HOUR"

WYDALLIS

with Science's New Midget Miracle, the Presto Fire Extinguisher, says W. F. Wydallis, Ohio

Many others "cleaning up"—so can you! Amazing tiny new extinguisher ends fires fast as 2 seconds. Guaranteed 20 years! Sells for only $3.98! Write for FREE Sales Kit. No obligation. (If you want a regular Presto to use as a demonstrator send $2.50. Money back if you wish.) **Merlite Industries, Dept. 115, 114 East 32 Street, New York 16, N. Y.**

MAKE UP TO $5 AN HOUR WITH EASISHARP

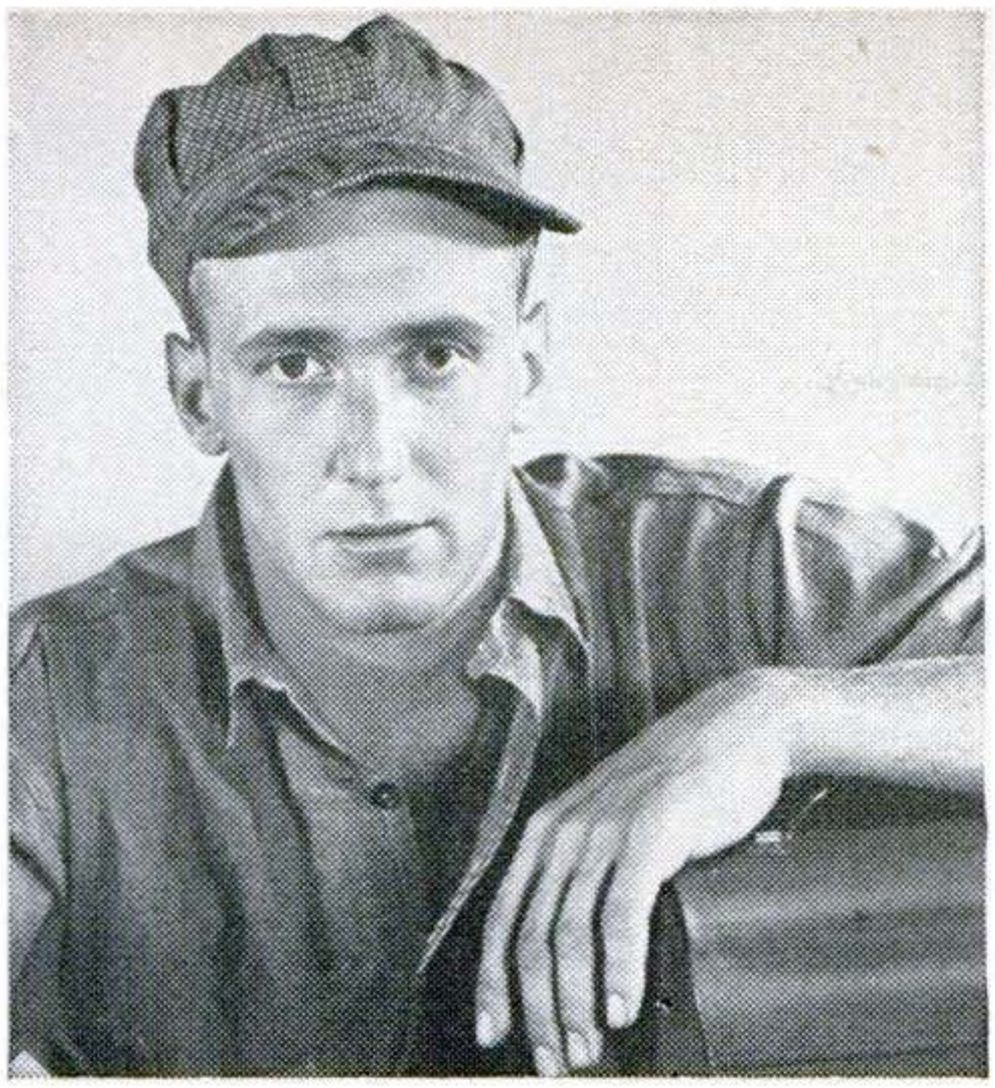


MONEY MAKING SALES PLAN FREE

Big profits in your spare time sharpening scissors. We show you how to start making money immediately. This is your chance now to have your own business and a steady income. Sharpen a pair of scissors in less than two minutes! A child can operate it. Weighs only 10 lbs. Every home, barber, tailor—everybody uses scissors and all need sharpening 2 to 4 times a year. Don't let someone beat you to this opportunity. Write immediately.

SERR-EDGE MACHINE CO., 9733 Lorain, Cleveland, O.

Copyrighted material



Are you too old to learn?

not at all, new tests show!

EXPERT SAYS YOU CAN LEARN NEW TRICKS! New tests, cited by an expert in news stories, show that: your ability to think increases with age; your powers of deduction are greater; your judgment is better.

I. C. S. KNEW IT ALL THE TIME! In the I. C. S. files are thousands of case histories of men and women of every age. Their successes, their promotions, their raises prove that men and women past school age can learn! Listen to A.L.G.* "Up until I took the course, I did what I was told. But now . . . I tell others what to do."

I. C. S. GIVES YOU EXPERT GUIDANCE FREE! Do you have the feeling you're "stuck" in your job? Your trained I. C. S. counselor will appraise your abilities, help you plan for the future. Listen to D.F.K.* "Before enrolling, I was a foundry laborer. Today I am a draftsman, enjoying a ⅓ increase in salary."

IT'S NEVER TOO LATE TO GET STARTED! You study with I. C. S. at home, in your spare time. There's no interference with business or social activity. Famous I. C. S. texts make learning easy. And whatever your age, you're more capable now than you've ever been. But don't delay! Pick your field from the coupon below. Mail the coupon today! We'll send free "success" book, survey of opportunities in your field! *Mail now for 3 free books.*

*Names on request

For Real Job Security—Get an I. C. S. Diploma! ...Easy Pay Plan...I. C. S., Scranton 9, Penna.

INTERNATIONAL CORRESPONDENCE SCHOOLS ICS

BOX 78314E, SCRANTON 9, PENNA. (Partial list of 277 courses)

Without cost or obligation, send me "HOW to SUCCEED" and the opportunity booklet about the field BEFORE which I have marked X (plus sample lesson):

ARCHITECTURE and BUILDING CONSTRUCTION
- ☐ Air Conditioning—Refrig.
- ☐ Architecture
- ☐ Architectural Interior
- ☐ Building Contractor
- ☐ Building Maintenance
- ☐ Carpenter and Mill Work
- ☐ Estimating
- ☐ Heating
- ☐ Painting Contractor
- ☐ Plumbing
- ☐ Reading Arch. Blueprints

ART
- ☐ Cartooning
- ☐ Commercial Art
- ☐ Fashion Illustrating
- ☐ Magazine Illustrating
- ☐ Show Card and Sign Lettering
- ☐ Sketching and Painting

AUTOMOTIVE
- ☐ Auto Body Rebuilding
- ☐ Auto Elec. Technician
- ☐ Auto-Engine Tune Up
- ☐ Automobile

AVIATION
- ☐ Aeronautical Engineering Jr.
- ☐ Aircraft & Engine Mechanic

BUSINESS
- ☐ Advertising
- ☐ Bookkeeping and Accounting
- ☐ Business Administration
- ☐ Business Correspondence
- ☐ Public Accounting
- ☐ Creative Salesmanship
- ☐ Federal Tax
- ☐ Letter-writing Improvement
- ☐ Office Management
- ☐ Professional Secretary
- ☐ Retail Business Management
- ☐ Sales Management
- ☐ Stenographic-Secretarial
- ☐ Traffic Management

CHEMISTRY
- ☐ Analytical Chemistry
- ☐ Chemical Engineering
- ☐ Chem. Lab. Technician
- ☐ General Chemistry
- ☐ Natural Gas Prod. & Trans.
- ☐ Petroleum Engineering
- ☐ Plastics
- ☐ Pulp and Paper Making

CIVIL, STRUCTURAL ENGINEERING
- ☐ Civil Engineering
- ☐ Construction Engineering
- ☐ Highway Engineering
- ☐ Reading Struct. Blueprints
- ☐ Sanitary Engineering
- ☐ Structural Engineering
- ☐ Surveying and Mapping

DRAFTING
- ☐ Aircraft Drafting
- ☐ Architectural Drafting
- ☐ Electrical Drafting
- ☐ Mechanical Drafting
- ☐ Mine Surveying and Mapping
- ☐ Plumbing Drawing and Estimating
- ☐ Structural Drafting

ELECTRICAL
- ☐ Electrical Engineering
- ☐ Electrical Maintenance
- ☐ Electrician ☐ Contracting
- ☐ Lineman

HIGH SCHOOL
- ☐ Commercial ☐ Good English
- ☐ High School Subjects
- ☐ Mathematics

LEADERSHIP
- ☐ Foremanship
- ☐ Industrial Supervision
- ☐ Leadership and Organization
- ☐ Personnel-Labor Relations

MECHANICAL AND SHOP
- ☐ Gas—Electric Welding
- ☐ Heat Treatment ☐ Metallurgy
- ☐ Industrial Engineering
- ☐ Industrial Instrumentation
- ☐ Industrial Supervision
- ☐ Internal Combustion Engines
- ☐ Machine Design-Drafting
- ☐ Machine Shop Inspection
- ☐ Machine Shop Practice
- ☐ Mechanical Engineering
- ☐ Quality Control
- ☐ Reading Shop Blueprints
- ☐ Refrigeration
- ☐ Sheet Metal Worker
- ☐ Tool Design ☐ Toolmaking

RADIO, TELEVISION
- ☐ Industrial Electronics
- ☐ Practical Radio TV Eng'r'ng
- ☐ Radio and TV Servicing
- ☐ Radio Operating
- ☐ Television Technician

RAILROAD
- ☐ Air Brakes ☐ Car Inspector
- ☐ Diesel Locomotive
- ☐ Locomotive Engineer
- ☐ Section Foreman

STEAM AND DIESEL POWER
- ☐ Combustion Engineering
- ☐ Diesel—Elec. ☐ Diesel Eng's
- ☐ Electric Light and Power
- ☐ Stationary Fireman
- ☐ Stationary Steam Engineering

TEXTILE
- ☐ Carding and Spinning
- ☐ Cotton, Rayon, Woolen Mfg.
- ☐ Finishing and Dyeing
- ☐ Loom Fixi'g ☐ Textile Des'ing
- ☐ Textile Eng'r'g ☐ Throwing
- ☐ Warping and Weaving

MISCELLANEOUS
- ☐ Domestic Refrigeration
- ☐ Marine Engineering
- ☐ Ocean Navigation
- ☐ Professional Engineering
- ☐ Short Story Writing
- ☐ Telephony

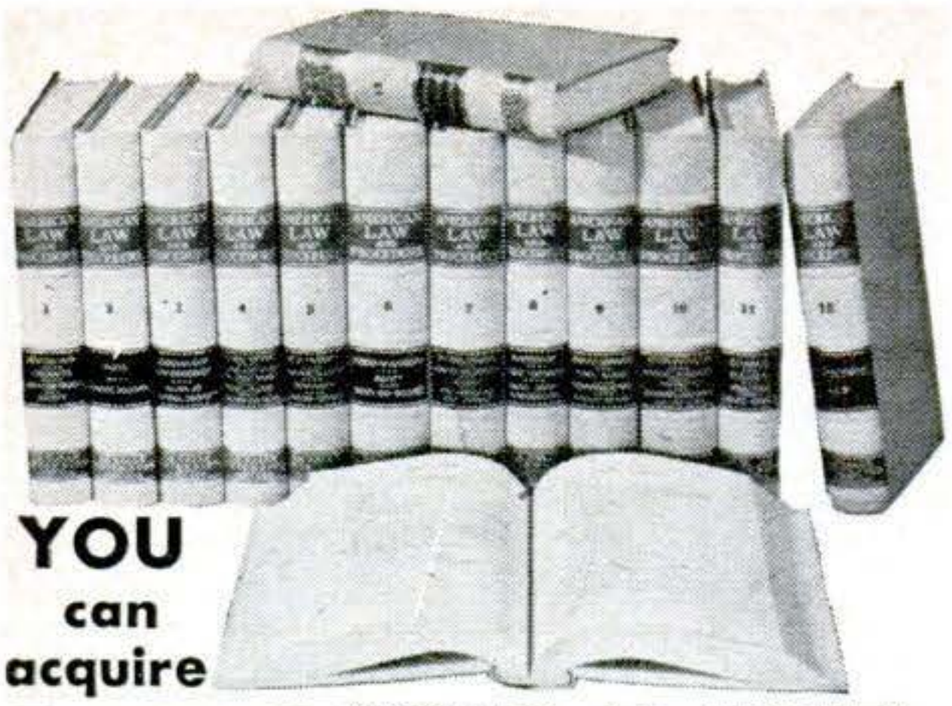
Name_____ Age_____ Home Address_____

City_____ Zone_____ State_____ Working Hours_____ A.M. to P.M._____

Occupation_____

Canadian residents send coupon to International Correspondence Schools, Canadian, Ltd., Montreal, Canada. . . . Special tuition rates to members of the U. S. Armed Forces.

Copyrighted material



YOU can acquire

LAW NIGHTS AT HOME! L L.B. DEGREE

LaSalle's famous Law Library—used as reference in many Law libraries and Law offices—has enabled thousands to master Law surprisingly fast, in spare hours at home, for business and professional advancement.

These 14 remarkable volumes, compiled by leading professors and lawyers, cover the whole basic field of Law in condensed, orderly, simplified manner.

You advance rapidly with this great library, plus special lectures furnished. We guide you step-by-step with personalized Problem Method of instruction . . . you *learn by doing*—handling legal problems—not by memorizing rules.

Send for two FREE 48-page booklets, "Law Training for Leadership," and "Evidence," answering questions about Law and its value to you, and telling how LaSalle Law graduates are winning rapid advancement in business and public life. Mail coupon below. No obligation.

LA SALLE EXTENSION UNIVERSITY
A Correspondence Institution

417 S. Dearborn St. Dept. 583L Chicago 5, ILL.

Send me your two FREE booklets described above, without obligation.

*Name*_____ *Age*_____

*Street*_____

*City, Zone & State*_____

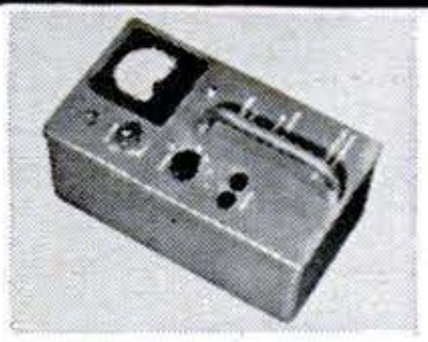
GARDEN SOIL WASHES RIGHT OFF

when you've used Du Pont PRO-TEK®

Like invisible gloves, Du Pont PRO-TEK hand cream guards your hands against garden soil, grease, paint. Just smooth on PRO-TEK before work, wash it off afterward — and away go sticky stains and grime along with the PRO-TEK! Leaves hands wonderfully clean. Try PRO-TEK today. At drug, hardware, paint and auto supply stores.

DU PONT REG. U.S. PAT. OFF. Better Things for Better Living . . . *through Chemistry*

URANIUM GEIGER KIT



Build your own professional model with meter, best sensitivity and easy to follow instructions. Uses two tube printed circuit having all the features of instruments three times as expensive. Three position range switch, phones, meter and flashing neon lite give indication of uranium. Kit comes complete with all necessary parts, ore sample and detailed instructions. This educational, money saving kit is fully guaranteed and its compact size 4½" x 8" x 4" is best for field use. Order now! Free information!

49.50

SIERRA SCIENTIFIC CO.
5415 YORK DEPT. 2 LOS ANGELES 42, CALIFORNIA

CASTING SECRETS REVEALED!

Now you can learn how to make big money by casting thousands of perfect plaques, book ends, figurines, etc., with X.L. rubber molds.

NO EXPERIE CE, VERY LITTLE CAPITAL NEEDED

X.L., Rubber, Pts. $2.50; Qts. $4.00 (postage extra). Molds and enough rubber for three molds, $1.50 prepaid. U.S. only. Send 25c (refunded with order) for informative catalog (40 pages) describing this wonderful, exciting *Profit-making* business.

HUGE PROFITS! MORE MONEY!

PLASTIC ARTS STUDIO 3403 S. MADISON, DEPT. 3 MUNCIE, INDIANA

DON'T BE CAUGHT WITH A DEAD BATTERY

Amazing "New Life" battery rejuvenator stops build-up of plate sulfates . . . keeps battery automatically charged. Use lights, heater, radio, as much as you like. Get faster starting! Greater power! *RECHARGING IS UNNECESSARY!* Only one treatment needed! Money back guarantee. Rush $1.00 to:

JSM PRODUCTS CO. • Dept. 26-1118 Castleton Rd., Cleveland 21, OHIO

BE A CAMERA CRAFTSMAN...

Send for FREE book!

Many are needed in this big paying field and now - - YOU can learn to repair cameras using manufacturers' service methods at home. . . in your spare time! Instructions, tools, practice equipment - everything you need is included in this approved course! Write for big FREE illustrated booklet that tells you HOW!

national camera repair school - DEPT. PS-5 ENGLEWOOD COLORADO

WHEELS WHEELS WHEELS

7" Disc Wheel ¾" Tire ⅜" sleeve	45c ea.
8" Disc Wheel 1⅛" Tire ½" sleeve	70c ea.
7" Disc Wheel 1" Tire ½" ball bearing	80c ea.
8" Disc Wheel 1⅛" Tire ½" ball bearing	$1.00 ea.
6" Disc Wheel 1.50 semi-pneum. Tire ½" B.B.	$1.35 ea.
8" Disc Wheel 2" semi-pneum. T. ½" B.B.	$1.50 ea.
10" Disc Wheel 1.75 semi-pneum. T. ½" B.B.	$1.50 ea.
10" Disc Wheel 2.75 semi-pneum. Tire ⅝" B.B.	$3.50 ea.
12" Disc Wheel 1.75 semi-pneum. T. ½" B.B.	$1.85 ea.

Above wheel prices includes hub cap. Plus Postage. C.O.D.'s accepted.
AXLES—Sizes 5/16 in., ⅜ in., ½ in.—Cut to size—End holes drilled.

UNITED WHEEL STAMPING CO.
12131 S. PEORIA STREET PS-5 CHICAGO 43, ILLINOIS

MAKE $5 PER HOUR WITHOUT A PRINTING PRESS

PRINTING

REVOLUTIONARY NEW SCREEN METHOD

FREE complete "BIG MONEY" Plan and SAMPLE!

PRINT colorful signs, posters, banners, fabrics, wall paper, show cards—ANYTHING! Print on any surface. NO printing press or special equipment is needed with this amazing "approved" new printing secret. *300% profit* on nearly every job. Easy to learn —NO EXPERIENCE or art ability necessary. Exceptional opportunity. Complete illustrated detailed plan and colorful sample FREE—Write:

EARN AT HOME SPARE or FULL Time

SCREEN-PRINT COMPANY, Dept. 15
15127 S. Broadway, Los Angeles 61, Calif.

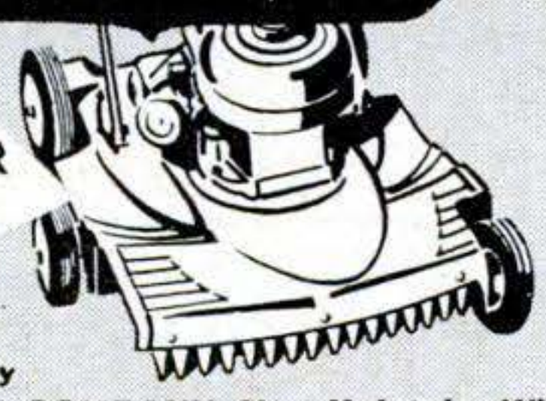
Copyrighted material

YOU'LL BE LUCKY TO GET

'America's FIRST'

LAUSON

4-CYCLE ENGINE (SINCE 1896)



ON YOUR POWER EQUIPMENT

Manufactured by
THE LAUSON COMPANY, New Holstein, Wis.
(Division of Hart-Carter Company)

LOOK!

A MILLION THRILLS!
High Power
BINOCULARS
30 DAY FREE TRIAL
Finest Precision Optics
Money Back Guarantee
Easy Pay Plan

33 Models
$9.95 UP

Free! Catalog & Book "How to Select Binoculars"

BUSHNELL Binoculars

Dept. P5 43 E. Green
Pasadena, Calif.

A "GOOD HAND" HELPS YOU SUCCEED!

LEARN TO WRITE WELL

Your Name beautifully written, plus special pen-point for shaded writing, Only 10¢

OUR 53rd YEAR

Handwriting quickly improves with our easy-to-understand picture lessons! Put your spare time to good use; send today for ☐ FREE BOOKLET, "How to Become a Good Penman," or check volumes wanted below at $1 each: ☐ Business Writing ☐ Artistic Writing ☐ Card Writing ☐ Bird & Design Flourishing ☐ Engrossing Alphabets. COMPLETE SET $4.50. Ask for price list of penman's supplies.

TAMBLYN SCHOOL of PENMANSHIP
S. A. Ziller, Pres. 438 Ridge Bldg., Kansas City, Mo., USA

ENGINEERING DEGREE IN 27 MONTHS

Big Demand for Graduates

AERONAUTICAL, CHEMICAL, CIVIL, ELECTRICAL, MECHANICAL and RADIO ENGINEERING (inc. TV and Electronics).

Hundreds of young men are earning B.S. ENGINEERING DEGREES annually in this recognized institution—year around operation. New terms start quarterly. Many students earn a major part of their college expenses in this large industrial center.

Low tuition. Competent instruction. Thorough, intense, practical program. Modern, well-equipped laboratories including new physics laboratory and modern wind tunnel. Individualized instruction emphasized.

Gov't approved for G.I.'s. Engineering preparatory courses. Students from 48 states and 21 foreign countries. Enter June, September December, March. Send coupon for free catalog and full information. Enroll now.

SEND COUPON TODAY

INDIANA TECHNICAL COLLEGE
655 E. Washington Boulevard
Fort Wayne 2, Indiana

Please send me free information on B. S. Engineering degree in 27 months as checked.
☐ Aeronautical, ☐ Chemical, ☐ Civil,
☐ Electrical, ☐ Mechanical, ☐ Radio-Television.

Name.....

Address.....

NO MATTER HOW YOU PAINT IT

It's easier with

With Dow latex and sturdy alkyd-resin, Luminall Paints apply easier, bind tighter, go farther and look richer! Everything built-in for amazing one-coat coverage on walls, ceilings and trim! A scrubbable, satiny finish! Dries in 20 minutes! No fumes, fuss or messy clean-up problem. Non-flammable! The easiest paints to apply with brush or roller!

FOR FREE COLOR CHART WRITE DEPT. 58,
Luminal Paints, 3617 South May Street,
Chicago 9, Illinois

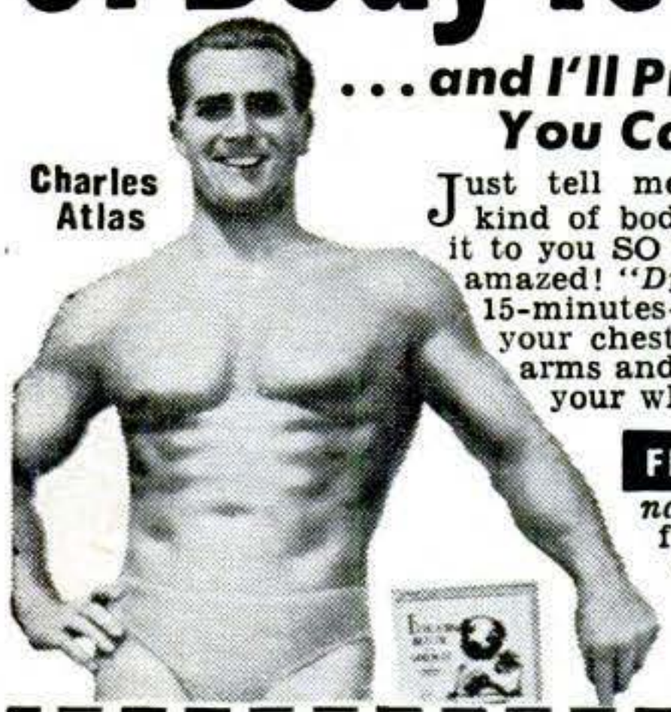
LUMINALL PAINTS

Chicago 9, Newark 5, Los Angeles 1, Dallas 7

FOR NEAREST DEALER SEE PHONE BOOK YELLOW PAGES
MILLIONS OF HAPPY USERS KNOW THE LUMINALL LABEL IS THE FINEST GUARANTEE IN PAINTS!

Copyrighted material

Check the Kind of Body You Want



Charles Atlas

...and I'll Prove How EASILY You Can Have It!

Just tell me, in coupon below, the kind of body you want—and I'll give it to you SO FAST your friends will be amazed! *"Dynamic Tension,"* my easy, 15-minutes-a-day method, will make your chest and shoulders bulge . . . arms and legs surge with power . . . your whole body feel "alive!"

FREE BOOK 32 pages on how *"Dynamic Tension"* changed me from a 97-pound weakling into "World's Most Perfectly Developed Man"—and how I'll *prove* it can change YOU too. Mail coupon NOW!

CHARLES ATLAS, Dept. 1S,
115 East 23rd St., New York 10, N. Y.

Dear Charles Atlas: Here's the Kind of Body I want:
(Check as many as you like)

- ☐ More Weight—Solid—in The Right Places
- ☐ Broader Chest, Shoulders
- ☐ Powerful Arms, Legs, Grip
- ☐ Slimmer Waist, Hips
- ☐ Better Sleep. More Energy

Send me absolutely FREE a copy of your famous book "Everlasting Health and Strength"—32 pages, crammed with photographs, answers to vital questions, and valuable advice. No obligation.

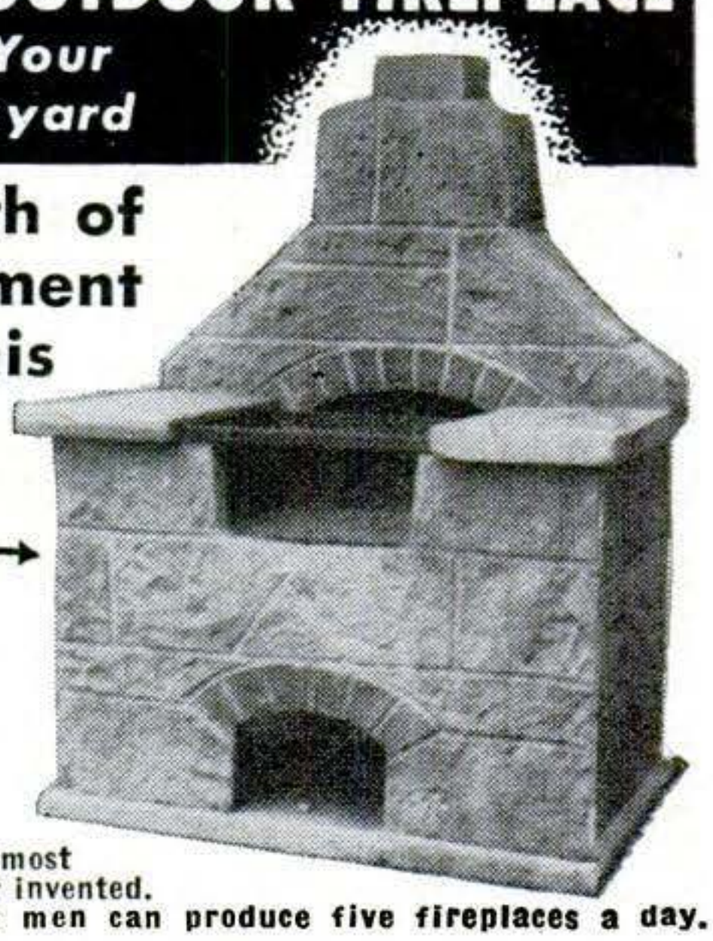
NAME_____ AGE_____
(please print or write plainly)

ADDRESS_____

CITY_____ STATE_____

MANUFACTURE THIS BEAUTIFUL CONCRETE OUTDOOR FIREPLACE

Right In Your Own Backyard



$4.00 Worth of Sand & Cement produces this Attractive Fireplace.

Sells on Sight from $60. to $80. Easy to start your own Profitable Business.

The General Fireplace Molds and Process are the most amazing and foolproof ever invented. Simple to operate. Two men can produce five fireplaces a day.

BIG DEMAND!!

Sell all you produce to Department Stores, Homeowners, Parks, Nurseries and Picnic Groves. Fireplaces sell on sight. No experience necessary. We supply full operating instructions and equipment plus the know-how that spells **BIG PROFITS.** This is an outstanding opportunity for men of vision and small capital to get into a busy rich paying field. Don't delay, be the only exclusive manufacturer in your own home town. Mail coupon at once for full details as to how you can reserve your territory. **Molds sold only on exclusive franchise.**

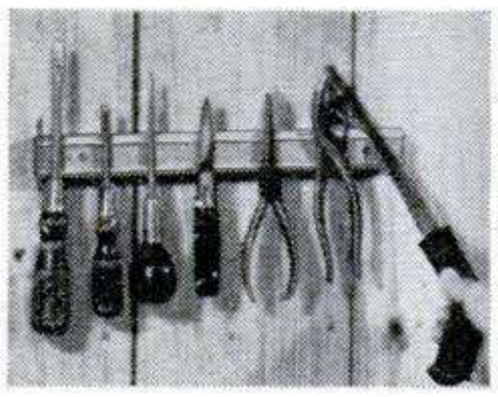
GENERAL ENGINES CO., Inc., Dept. SF-55
307 HUNTER ST. • GLOUCESTER CITY, N. J.

Mr. Tor of Philadelphia writes: Sold 250 in first 4 months. Selling to Sears Roebuck, John Wanamaker, and Gimbel Bros. in Philadelphia area.

Name .....
Address .....
City ..... Zone .....
State .....

NEW Magnetic Holder Keeps Tools in Place

World's handiest way to hold tools neatly in place, within easy reach. Natural hardwood finish with permanently magnetized steel bars. Get one for your workshop, tool shed, paneled kitchen, rumpus room. Comes in three convenient lengths. (Can be cut with hacksaw to fit exact space, if desired.)



24-in. Magnabar only $5.25; 18-inch, $4.25; 12-inch, $3.25. If your regular hardware or housewares store does not carry them, send check or money order direct to

MAGNABAR ®
81 Maple Street
East Longmeadow, Mass.

Do FALSE TEETH Rock, Slide or Slip?

FASTEETH, an improved powder to be sprinkled on upper or lower plates, holds false teeth more firmly in place. Do not slide, slip or rock. No gummy, gooey, pasty taste or feeling. FASTEETH is **alkaline** (non-acid). Does not sour. Checks "plate odor" (denture breath). Get FASTEETH at any drug counter.

LEARN MEAT CUTTING

Train quickly in 8 short weeks at Toledo for a bright future with security in the vital meat business. Big pay, full-time jobs—HAVE A PROFITABLE MARKET OF YOUR OWN! Pay after graduation. Diploma given. Job help. Thousands of successful graduates. Our 32nd year! Send NOW for FREE catalog. No obligation. G. I. Approved.
NATIONAL SCHOOL OF MEAT CUTTING, Dept. 51-R, Toledo 4, Ohio

OVERLOAD SPRINGS

$9.95 Per Pair postpaid
2000 LB. SIZE $11.95

For cars and trucks. Front and rear. Gives 2000 lbs. extra capacity for all ½, ¾, and 1 ton trucks; 500 or 1000 lbs. extra for all cars. Easily installed. Guaranteed. State make, model. Dealers wanted.

BRINKMAN MANUFACTURING CO.
2315 Clay Dept. 6-B Topeka, Kansas

HAWAIIAN WIGGLER #1

WORLD-FAMOUS FISH-GETTER

Deep runner. No snag-up in pads and brush. Easy to cast. Rubber Hula Skirt acts alive. At your dealer 5/8 oz. or 1/4 oz., $1.15 each.

FRED ARBOGAST CO. INC.
2315 W. North St., Akron 3, Ohio

FREE WRITE TODAY FOR YOUR BIG FREE ARBOGAST COLOR CATALOG—FULL OF PICTURES OF CATCHES

60 POWER TELESCOPE $3.98

VARIABLE EYEPIECE 20X40X60X—BRASS BOUND

NEW! Three telescopes in one. 3 different magnifications. 20 power for ultra-bright images with 40 and 60 power for extra long range. Guaranteed to bring distant objects, people, sports events, ships, moon, stars, etc. 60 times as close. Made in U.S.A.

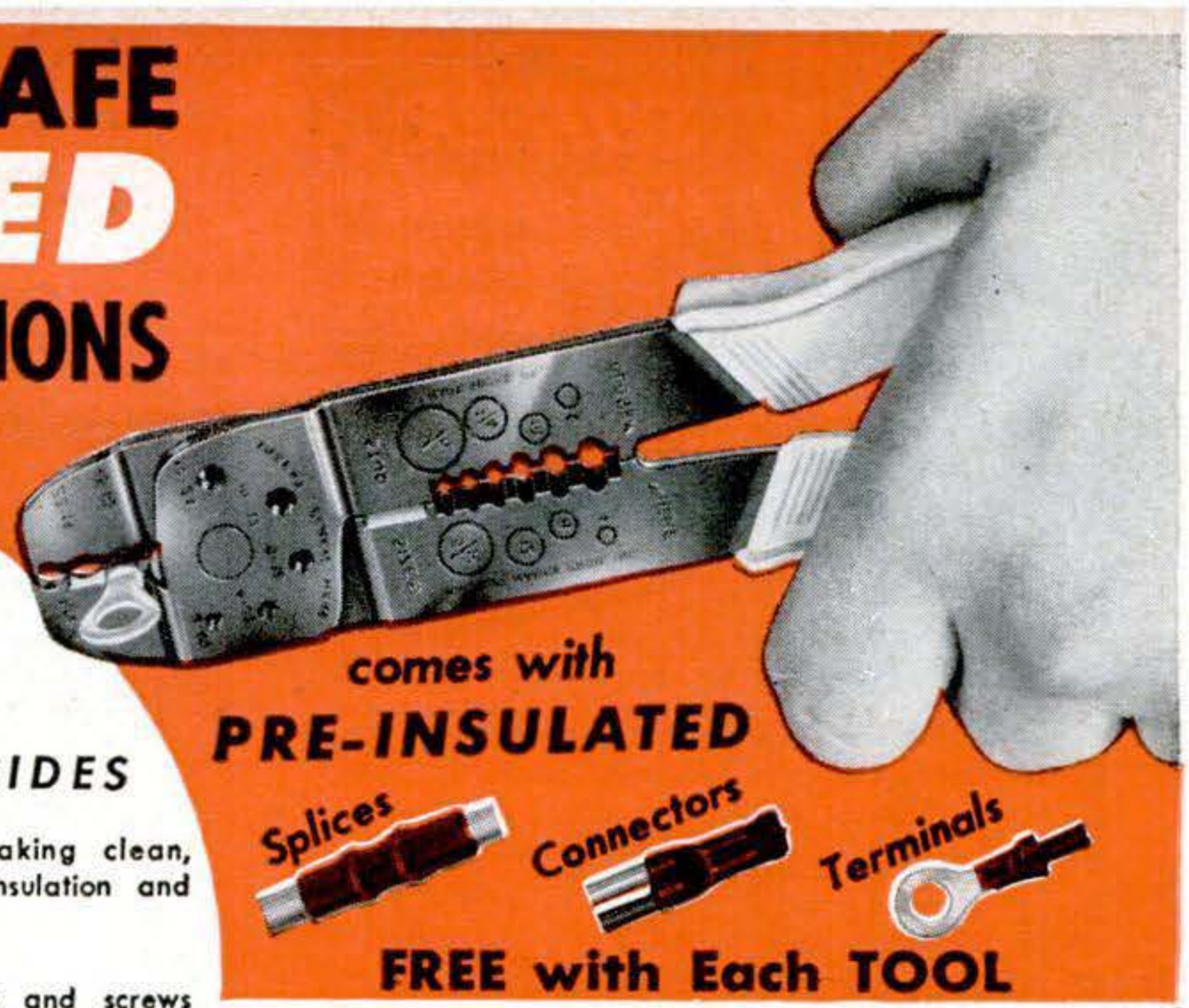
Most powerful for anywhere near the money. 5 Sections. Closes to 1 ft. long. Contains 4 ground and polished lenses. Also used as a powerful compound microscope. Directions included. Mass production enables us to offer this instrument at amazing price of $3.98 complete. Money back guarantee. We pay postage. Get yours now.

As A Microscope

CRITERION CO.
DEPT. PSB27
331 CHURCH ST.
HARTFORD 1, CONN.

Copyrighted material

Make SURE, SAFE INSULATED ELECTRICAL CONNECTIONS



The New SUPER CHAMP Hand Tool

The ONE Tool for ALL Wire Sizes used in Home Wiring, Appliances, Automobiles.

DOES ALL THESE THINGS BESIDES

CRIMPS Solderless Terminals and Connectors without solder or tape for safe connections.

CUTS Wire, making clean, sharp cut through Insulation and Conductor.

STRIPS Wire sizes #22-#10. Gauges assure proper length for sure, safe crimp.

SHEARS Bolts and screws without damaging threads — no filing or hack sawing.

ORDER DIRECT—USE COUPON

Only $3.95 Post Paid

Satisfaction guaranteed or money back.
Send check or money order for $3.95.
(Ohio residents add 12c sales tax.)

T. W. Berger, Inc.
National Distributor Consumers and Dealers
AIRCRAFT-MARINE PRODUCTS, Inc.
1319-MY American Bldg., Cincinnati 2, Ohio

T. W. Berger, Inc.
National Distributor Champ Tool
1319-MY American Bldg., Cincinnati 2, Ohio
Send me post paid the new super Champ Hand Tool. I am enclosing $3.95. *(Ohio residents add 12c sales tax.)*

☐ check ☐ money order

NAME .....

ADDRESS .....

CITY.....ZONE.....STATE.....

TOUCH-UP IN MINUTES!

with original FACTORY FINISH *TEMPO* INSTANT-SPRAY

The slick, modern way to touch-up scratches, rust spots and stone bruises. TEMPO Instant-Spray is a complete paint shop in a can . . . no muss, fuss or messy brushes . . . just press the button. Available for Chevrolet '53-'54-'55, Ford '54-'55, Plymouth, Buick, Olds '55, as well as Appliance White, Chrome-sheen Aluminum and Black.

Get it at your new car dealer. Or, send $2.00 with make, year and exact color. Your auto dealer uses Tempo Instant-Spray, why don't you? Terrific for tools, toys and metal furniture.

TEMPO PRODUCTS CO., 2075 East 65th St., Cleveland 3, Ohio

FACTORY-APPROVED COLORS FOR OUTBOARD MOTORS, PLUS COMPLETE LINE MARINE PAINT PRODUCTS. SEE YOUR MARINE DEALER

DOUBLE YOUR PAY! LEARN

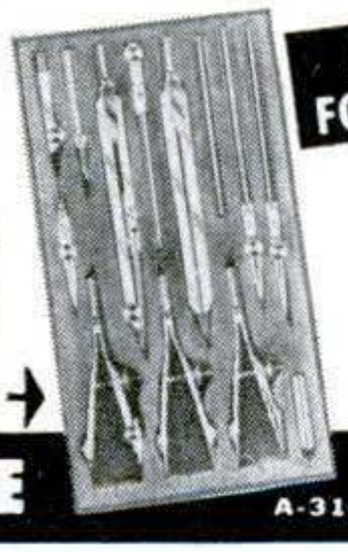
DRAFTING

IN SPARE TIME—AT HOME

"MY INCOME JUMPED FROM $350 UP TO $820 PER MONTH" Says G. T. WISEMAN

"My first position after I completed the C. E. I. homestudy course on Engineering Drafting more than doubled my pay. I highly recommend this valuable, *easy* course to anyone interested in getting ahead in life."

GET THIS SET OF INSTRUMENTS AT NO EXTRA COST!



A-318

APPROVED FOR VETERANS

YES, SEND **FREE** SUCCESS BOOK

CLEVELAND ENGINEERING INSTITUTE
Extension Division PS-5E
6300 Euclid Ave., Cleveland 3, Ohio

( ) Mechanical ( ) Aeronautical

VETS: give date of discharge.....

NAME .....

ADDRESS .....

CITY ..... STATE .....

CLEVELAND ENGINEERING INSTITUTE

Copyrighted material

IF YOU SUFFER PAIN of HEADACHE NEURALGIA NEURITIS

get **FAST RELIEF** with

the way thousands of physicians and dentists recommend.

HERE'S WHY **. . . Anacin is like a doctor's prescription. That is, Anacin contains not just one but a combination of medically proved active ingredients. No other product gives faster, longer-lasting relief from pain of headache, neuralgia, neuritis than Anacin tablets. Buy Anacin® today!**

Shrinks Hemorrhoids New Way Without Surgery

Science Finds Healing Substance That Relieves Pain—Shrinks Hemorrhoids

For the first time science has found a new healing substance with the astonishing ability to shrink hemorrhoids and to relieve pain — without surgery.

In case after case, while gently relieving pain, actual reduction (shrinkage) took place.

Most amazing of all — results were so thorough that sufferers made astonishing statements like "Piles have ceased to be a problem!"

The secret is a new healing substance (Bio-Dyne*)—discovery of a world-famous research institute.

Now this new healing substance is offered in ointment form under the name of *Preparation H.** Ask for it at all drug stores —money back guarantee. *Reg. U. S. Pat. Off.

USED 16x50

Regularly sold at $69.50

NOW $37.60

These are not "used" in the sense that someone else owned them, but their frames have been scratched or some of the paint rubbed off while being taken off of the shelves or when handled on our viewing range. Their cases, too, sometimes show scuff marks. OPTICALLY AND MECHANICALLY THEY ARE A-1. 7" high. Water-dust resistant. 2" wide objectives assure greater illumination and brighter sharper images. Weighs only 27 ounces!

SALE 20 POWER

Regularly $39.95

NOW $29.95

Brand new glasses. Never in the 100 years since Carl Zeiss invented binoculars has it been possible to get a **20 POWER PRISMATIC BINOCULAR** that weighed only **18 OUNCES!** Precision made. Individual focus with removable, screw-in protective caps. Lens are color corrected. Handsome crackle finish with satin chrome trim. Increased sales have lowered production costs and we are passing on this $10.00 savings to you for **THIS SALE ONLY!**

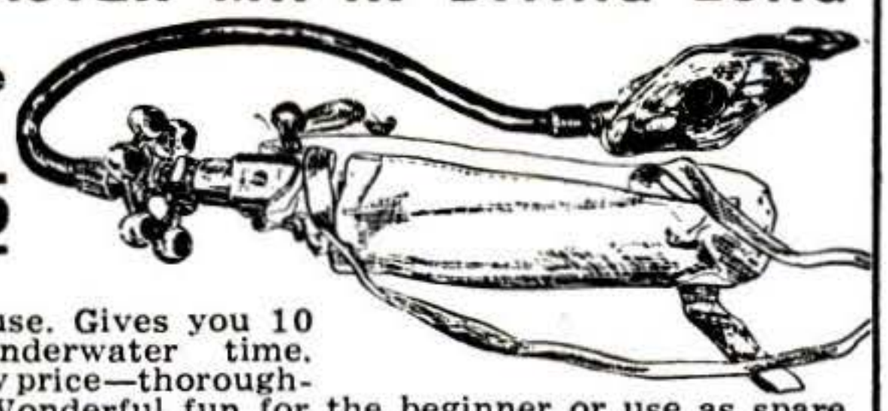
30 DAY NO RISK TRIAL

If not satisfied return for full refund. Made in Japan. Leather case, straps included. Add 10% Fed. tax. Cash orders prepaid. C.O.D.'s require $2.00 deposit. **UNITED BINOCULAR CO.**, Dept. ARF-1616, 9043 S. Western Ave., Chicago 20.

DEALERS WANTED. Write for latest wholesale catalog.

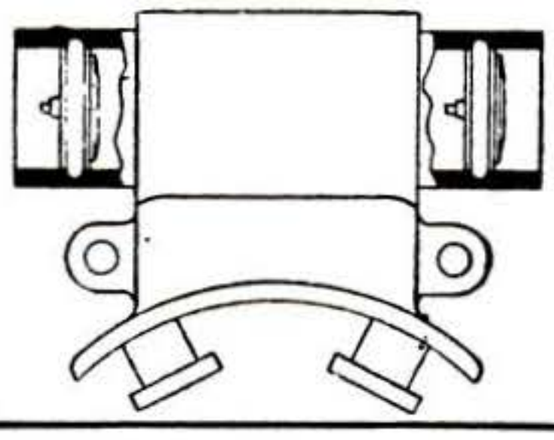
DIVEMASTER MK-III DIVING LUNG

Complete only $19.95



Ready for use. Gives you 10 minutes underwater time. Amazing low price—thoroughly tested. Wonderful fun for the beginner or use as spare unit safety device.

DIVEMASTER Pure Rubber MOUTHPIECE



Precision unit, comes completely assembled, can be quickly installed on diving lung. Incorporates two check valves—one for exhaust, one for intake. Designed to allow minimum amount of water to enter the air lines. Provides for constant air supply when in use. Porthole sizes 1⅛" O.D. **$8.50**

Illustrated Catalog of everything you need for Underwater Sports Adventure. 25c.

DIVEMASTER
U.A.S. Corporation, Dept. PS-5
5643 W. 63rd Place, Chicago 38, Ill.

MEN WANTED

Earn $100 Per Week and up
AUTO DIESEL MECHANICS

Master a trade with a future—learn Auto-Diesel mechanics in our shops. You learn with tools on real equipment. Earn while you learn. Many of our graduates earn $100 per week and up. No previous experience necessary. Day and night courses. Approved for veterans. Write for free bulletin.

NASHVILLE AUTO-DIESEL COLLEGE
226 7th Ave., N., Dept. 41 **Nashville 3, Tenn.**

$2.95 EACH OR 2 FOR $5.00!

Genuine Telephone Company Upright Telephones, complete with cords, in tested and guaranteed condition with 50 ft. of wire, intercommunication instructions. Complete line of telephones and parts, dial, magneto, intercommunication, etc. Write for free list. All shipments F.O.B.

TELEPHONE ENGINEERING CO.
Dept. 5-A5 **Simpson, Pa.**

Also ADULT 2 Passenger "Eshelman" SPORT CAR

1/5 the cost of any other auto

70 Miles per Gal.

Free Catalog.

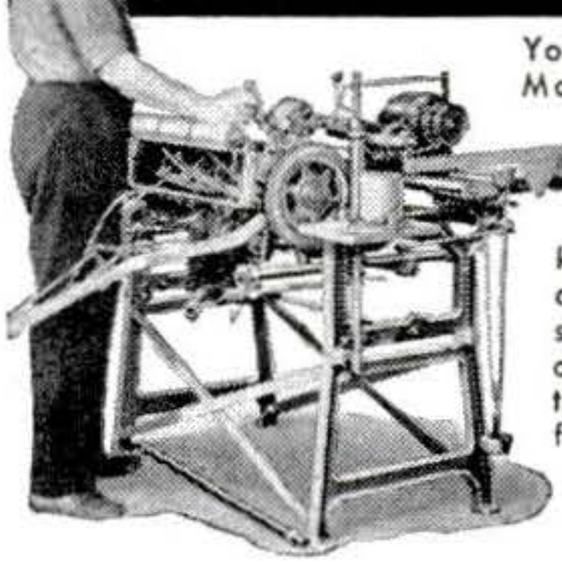
RAKES
PLOWS
CULTIVATES
HARROWS
HAULS
SPRAYS
SAWS
DOZER
MOWS
CUTS
ROLLS
TILLS
SNOW PLOW

ESHELMAN FOR BETTER LAWNS and GARDENS

Also Power Reverse. Women can operate it. Free Catalog. Write:

ESHELMAN, Dept. W-45
109 Light St.
Baltimore 2, Md.
333 N. Michigan Ave.
Chicago 1, Ill.
6087 Sunset Blvd.
Los Angeles 28, Calif.

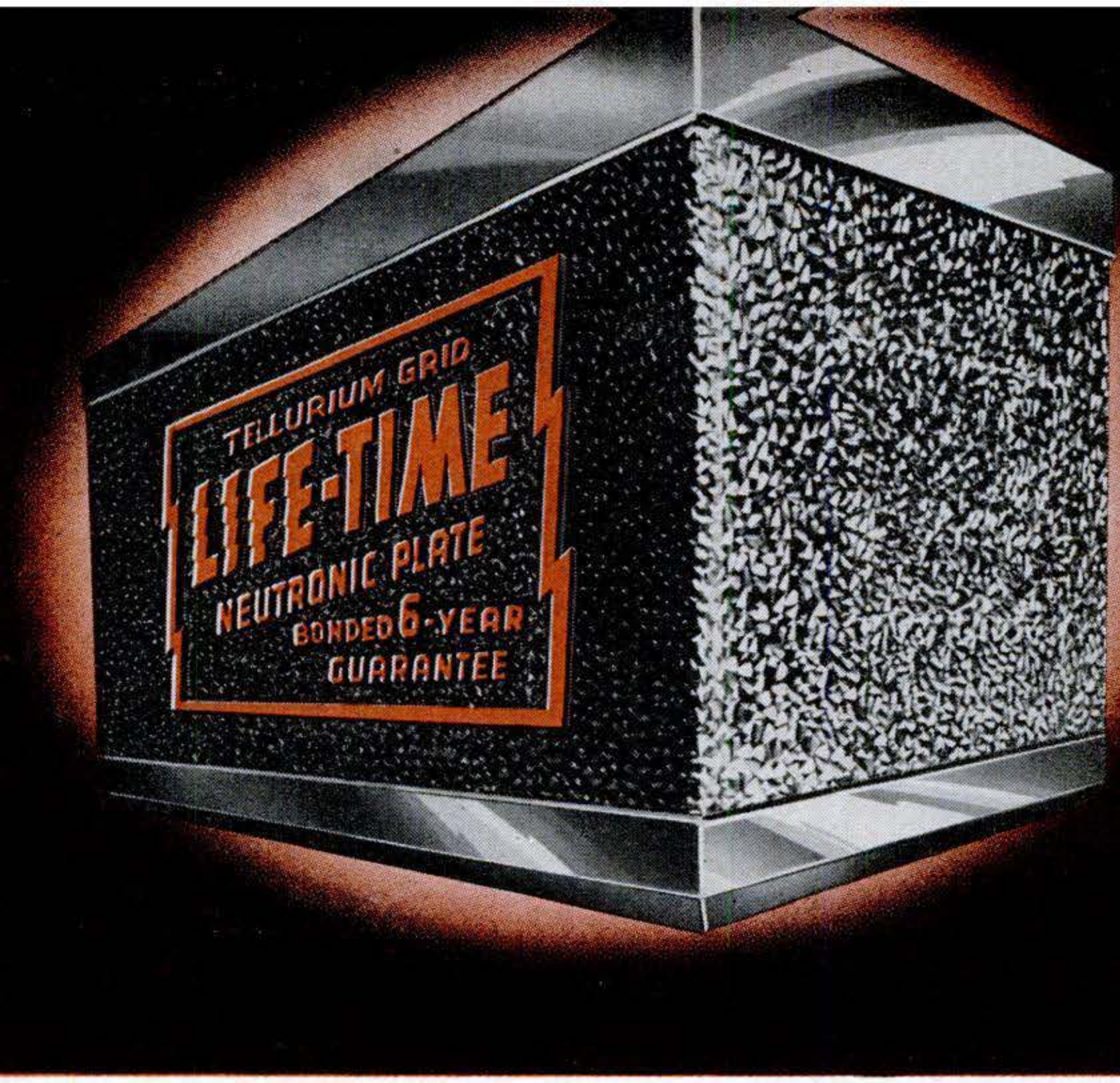
Extra money for you with IDEAL LAWNMOWER SHARPENER



You can earn extra money with the Model 300 Ideal Lawnmower Sharpener. No experience needed, easy to operate. Grinds and reconditions reel and bed knife. Customer satisfaction guarantees repeat business. Complete shop in one machine. Spare time or full time, it's the IDEAL way to extra profits for you. Write for catalog today.

THE FATE-ROOT-HEATH CO.
Dept. PS-5, Plymouth, Ohio

Copyrighted material



DRIVE 2 MILES WITHOUT GAS!

LIFE-TIME BATTERY MAKERS REVEAL SECRET 1954 DISCOVERY...PRODUCE 1,130,000 FOOT-POUNDS FORCE IN CAR SIZE MODEL!

Incredible as it would have seemed a few short years ago, our engineers have now succeeded in cramming over one million foot-pounds of useful energy into a small power cube of the size you use in your automobile. The new LIFE-TIME battery development produces greater amperage (engine-turning power) than any battery ever made that will fit your car.

This phenomenal output (1,130,000 foot-pounds) is now confirmed by U.S. Testing Laboratories. It is ample to allow you to drive your car approximately 2.1 miles over level terrain! We might emphasize here that we are not recommending this procedure as a substitute for gasoline. However, to amuse yourself, you might try running your car on this battery and shifting through the gears meanwhile, just as though the ignition were on. You will be completely flabbergasted at the power and speed generated by this amazing battery alone! But these are engineers' tricks and are not the reason you buy a battery — and this brings us to the secret development which will possibly quadruple the guaranteed six-year peak efficiency life of this battery.

MEGAPORE MICRO-FILTER

Since mid-1954 LIFE-TIME engineers have been installing this unusual material in all batteries. It is a vast and important improvement over the previous best separator, a plastic-coated fiber sheet. You may be surprised to learn that, even today, the plates in most batteries are separated by thin wooden "shingles" or even heavy paper. These substances are rapidly "digested" by the acid electrolyte and are probably the reason why you have purchased many a battery in your time. Once a separator fails and allows a positive and negative plate to touch, the power from that cell is instantly 100% lost and dead. And once one wooden separator goes the rest are close behind. There you have the real story of why 57% of all batteries are replaced each year. To our knowledge, this has never before appeared in print.

The new Megapore Micro-Filter is so fine that it allows only the ion solution to pass, barring even microscopic solids which build up and short out ordinary batteries. The MM-F contains millions of pores which completely circulate the electrolyte and stop "acid-starvation" of the end plates, a condition of even new premium batteries which may cut amperage and starting power up to 10%!

MM-F separators are flexible—will not crack or fail from jars and bumps, will not fail in critical underhood installations in any summer heat or arctic operating conditions known on earth!

TOOK 1142 CHARGES!

This same LIFE-TIME Battery was depleted and recharged 1142 times. In most instances it will bounce back when depleted with enough power to start a car in 30 seconds! You can try this test with any stock LIFE-TIME Battery.

DROWNED IN THE OCEAN

The original LIFE-TIME Batteries are now just about reaching their eleventh year. We occasionally hear from present owners that their original model is still putting out the old amps. Here is part of a letter about a more recent experience which a LIFE-TIME Battery went through. Attorney Martin Johnson of Providence, Rhode Island, writes: **"My car was completely submerged at the seashore by the hurricane of August 31, 1954. I am most happy to inform you that within two days following the submersion I saved the battery, flushed out the cells and replaced with old battery acid and then recharged it on the generator of the old car. The battery has, I believe, been completely restored and still has its old zing!"**

ORDER BY MAIL

All batteries now shipped are Million Foot-Pound Model with Megapore Micro-Filter (MM-F), Catalyte case, Neutronic plates, Tellurium Grids throughout.

6 VOLT (any car) $29.95 ppd.
12 VOLT (any car) $34.95 ppd.

IMMEDIATE DELIVERY

DEALERS AND DISTRIBUTORS: Write for complete information on new LIFE-TIME Million Foot-Pound Model with MM-F separators.

Continental Manufacturing Corporation
Washington Boulevard at Motor Avenue,
Culver City 37, California

Please ship LIFE-TIME (MM-F) Million Foot-Pounds Battery

☐ **6 VOLT ($29.95 postpaid)** ☐ **12 VOLT ($34.95 postpaid)**

For.....
(make, model, year of car)
(If you wish, send $5 deposit, balance C.O.D.)
California residents add 3% state tax.

name.....

address.....

city..... zone..... state.....

Copyrighted material

BE YOUR OWN MUSIC TEACHER

Send for Free Book Telling How Easily You Can Learn Piano, Guitar, Accordion, ANY Instrument This EASY A-B-C Way

NOW IT'S EASY to learn music at home. No tiresome "exercises." No teacher, just START RIGHT OUT playing simple pieces. Thousands now play who never thought they could. Our pictured lessons make it easy as A-B-C to learn to play popular music, hymns, classical and any other music. Only a few cents a lesson. Over 900,000 students! (Our 57th successful year.)

FREE ILLUSTRATED BOOK

Find out why our method can teach you quickly, easily, inexpensively. Read what others say. Mail coupon for our 36-page illustrated Free Book. No obligation. No salesman will call on you. Mention your favorite instrument. **U. S. SCHOOL OF MUSIC, Studio A155, Port Washington, N. Y.** (Special Reduced Prices on instruments to our students.)

U. S. SCHOOL OF MUSIC, Studio A155, Port Washington, N. Y.
Please send me your 36-page illustrated Free Book. I would like to play (Name Instrument):

Instrument ..... Have you Instrument? .....

Name .....
(Please Print)

Address .....

New Stock of First Quality

TELTRON TUBES

GUARANTEED! . . . LOWEST PRICES EVER!

FREE BONUS OFFER!

Model 625K

- Illum. gear-driven "speed Rollchart"
- New lever-action switches for individual testing of every element
- Tests all conventional and TV tubes

This Eico Tube Tester is yours FREE when you buy $199 worth of tubes or more within 60 days at Teltron.
May be bought outright from Teltron for **$34.95**

SPECIALS

Type	Price	Type	Price
1B3GT	.59	6AF4	.89
1R5	.45	6AG5	.47
1T4	.45	6AU6	.39
1U4	.45	6BN6	.79
1U5	.38	6BQ7	.79
3Q4	.47	7N7	.47
3S4	.44	12AT6	.34
5U4G	.40	12BA6	.39
		12SQ7	.34
		25L6GT	.37

Send for Free complete tube listing and monthly specials! Get on our mailing list.

FREE $7.20 list value Bonus Box of three 6SN7 tubes and 25 assorted resistors with each order of $25 or more.

SAME DAY SERVICE 48 Hour Postal Delivery To West Coast

Send check, cash or money order. No C.O.D.'s, please. No minimum order. Postage prepaid. Send for full complete tube listing.

TELTRON ELECTRIC COMPANY
428 Harrison Ave., Harrison, N. J.
Dept. PS-5 Humboldt 4-9848

Get the Facts on MOBILE LIVING

Get TRAILER TOPICS MAGAZINE

When you subscribe to Trailer Topics Magazine, you get the latest information on Mobilehomes . . . Equipment . . . Accessories . . . Trailer Trips . . . Trailer Parks and many other interesting monthly features at only—$3.00 for 2 years.

6-Month Trial Subscription $1

TRAILER TOPICS MAGAZINE (Room 1581)
28 East Jackson Blvd., Chicago 4, Illinois

---

250 POWER . . . . .

Complete Telescope Lens Kit only **$3.49** postpaid

Conquer Space, Explore the Universe, Planets, Moon craters, New Stars, etc. Complete Lens Kit consists of 80 inch focal length ground and polished objective lens, eyepiece lenses for 50 POWER, 100 POWER, 150 POWER, 200 POWER, 250 POWER, and all necessary lens fittings. Easy to make from simple step by step instructions. (Tripod and mount not included.) Money back guarantee.

BUSSE SALES CO., Hartford, Conn., Dept. PS32

FREE! 60 APPROVED EXERCISES, 68 PHOTOS with FAMOUS DAN LURIE

BARBELLS

50 lb. set....$ 8.48	150 lb. set....$20.48
100 lb. set....$13.98	200 lb. set....$25.98

SEND FOR FREE CATALOG

Order by mail—50% with order Balance COD. Extra WTS. 13c lb. FOB Plant.

DAN LURIE BARBELL CO.
5255 Bristol St., Dept. 570E, Brooklyn 12, N.Y.
SEE DAN ON T V "BIG TOP" SHOW

FIREARMS & SWORDS

You don't want to miss our new thrill-packed catalog. Fascinating background and illustrations of 1800 authentic pieces. Exceptional values in hard-to-find items. For your 175 page catalog #29 simply send 50c to cover postage and handling with your name and address.

ROBERT ABELS, Box PS, 860 Lexington Ave., New York 21, N. Y.

EXPERIMENTERS

New System Invention

HOW TO STUDY PATENTS TO MAKE YOUR OWN NEW PRODUCTS TO SELL. Make electric hammers. Jet engines. Helicopter bicycle. Blow bicycle. Toys. Tools. Gift goods. Sell by mail. New advanced service for serious experimenters. Small cost. Nowhere near what it's worth to you if you can make money. Find out now. Get quick action. Rush name on postcard.

J. HOUSTON MAUPIN, Dept. 63, Tipp City, Ohio

SAFETY GLASSES CASES

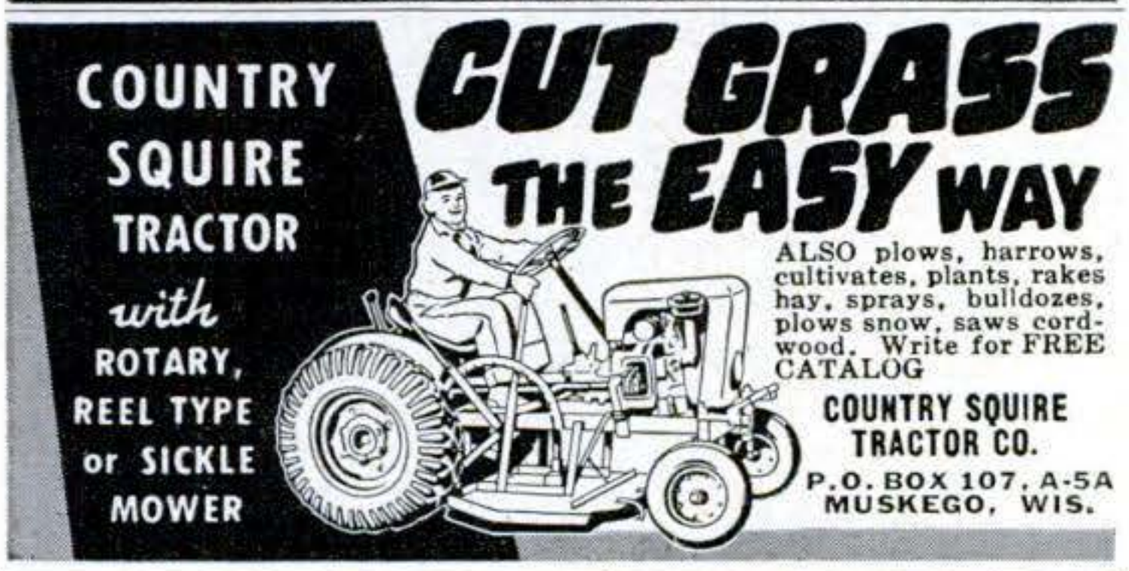
Prevent loss, breakage!

No more lost reading glasses, sun glasses, driving glasses with Clip-On Safety Glasses Case. Spring clip holds case firmly in pocket or on auto sun-visor. Gentle gripping action holds glasses, prevents breakage due to dropping on hard surfaces. Remove items for use, case stays in pocket. Handsome, tan saddle leather. For shop, office, home, car.

Model 236, Glasses Case, $1.50
Model 237, Glasses, Pen, Pencil Case, $2.00

NELSON'S Dept. PS-5 SIERRA MADRE, CALIF.

Copyrighted material



TRAIN NOW FOR A DIESEL FUTURE. Steady, high-pay jobs await men qualified in Diesel, Tractor, and Heavy Equipment. Are you qualified for job and advancement opportunities in this fast-growing field? You *can* qualify!

COMPLETE DIESEL COURSE NOW AVAILABLE. If you are ambitious and want to get ahead in this big money field, you'll want to know about the complete Diesel home training course now offered by Interstate Training Service. Covers all phases of operation, repair, service. Easy to master in spare time. No interference with present job. Up-to-the-minute. Regularly revised to cover new developments. We invite comparison of material offered. Advisory placement service for our students.

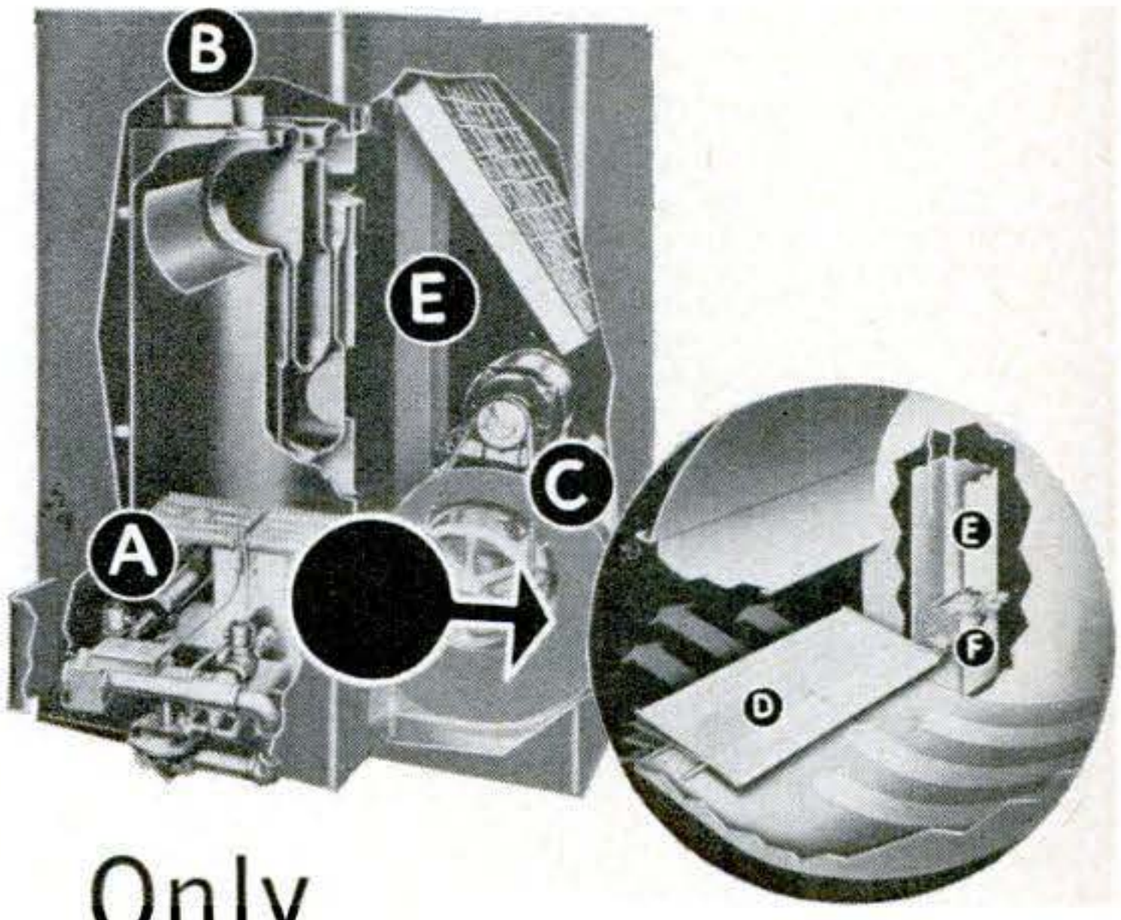
YOU OWE IT TO YOURSELF to investigate Interstate Training Service Diesel Training. Thousands agree it has helped them to better jobs...better pay. It can do the same for you!

WRITE FOR FREE INFORMATION TODAY

INTERSTATE TRAINING SERVICE, Portland 13, Ore.
Please see that I receive FREE 24-page book, "Getting Ahead In Diesel." (A-2-E)

NAME_____ AGE_____
ADDRESS_____
CITY_____ ZONE_____ STATE_____

Heating engineers acclaim REGULAIRE* for greatest heating comfort!



Only Perfection has it!

How Regulaire Works...

With thermostat set at desired room temperature, burner (A) comes on at Coasting Fire, then turns to High Fire if the rooms are cold. When the furnace bonnet (B) becomes warm, the Regulaire Blower (C) begins quiet delivery of warmth with vane (D) closed. Warm air is drawn down duct (E) and warms thermo-coil (F) which gradually opens vane (D) to gently increase flow of warm air to your rooms. It is this thermo-coil and vane—sensitive to the slightest change in bonnet temperature—plus a Hi-Lo burner that regulates the flow of warmth to your rooms, and assures perfect heating comfort in any weather. Send for free informative book, "If It's Comfort You Want." PERFECTION INDUSTRIES, INC., (formerly Perfection Stove Company,) 7638-C Platt Avenue, Cleveland 4, Ohio.

*Pat. pending

YOUR HOME DESERVES **Perfection**

Copyrighted material

TRAINED MEN NEEDED

BIG PAY—GOOD FUTURE

☐ TELEVISION ☐ ELECTRONICS
☐ DIESEL ☐ AUTO

WHY WORK FOR LOW PAY or risk being out of a job??? Usually the properly trained man has a steady job . . . through good times or bad. Even back during DEPRESSION there was a *big demand* for Bailey Trained men.

In only 5½ to 6 months we can train YOU to enter one of the big pay fields!

No previous experience or special education necessary. With our method of training you do not spend years pouring over books, figures, charts and graphs. You learn by rebuilding, repairing, testing and operating the most modern equipment, under the guidance of experienced, courteous and friendly instructors. This method of training gives you the experience and confidence required to step right into the big pay jobs without spending years as a mechanic's helper.

It's EASIER and COSTS LESS than you may think to get this residence shop training . . . we help you find part-time jobs while in school—full-time jobs after graduation. Check subject above in which you are interested and mail for complete information.

BAILEY Technical SCHOOLS
Veteran Approved
1632 S. Grand St. Louis 4, Mo.

NAME.....AGE.....
STREET.....
TOWN.....ZONE.....STATE.....

ENFIELD COMMANDO REVOLVER

$14.95

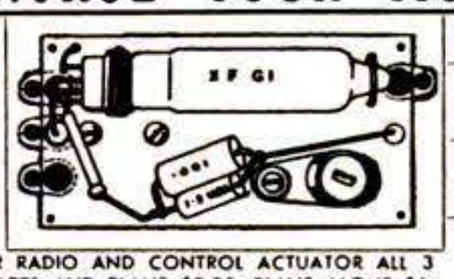
Designed and ordered by the British Commando force (WW II), a rare and unusual weapon. Would sell new for $60. We have a small lot which we believe are the last anywhere in the world. Very Good Cond., bores perfect. Modern breaktop design with strongest stirrup lock ever made, allowing it to be reloaded with one hand at a dead run. It fires .38 S&W ammunition. Bears British Crown and Broad Arrow ordnance marks. Special non-slip grips, two-side thumb rests. A fine shooting piece. A good investment for home defense, camping trips, rugged all around use. **To order:** Send check, cash or money order. Shipped FOB Pasadena. For COD send ⅓ deposit. Dealers inquire.

GOLDEN STATE ARMS CORP., 23 Armory Bldg.
1165 E. Colorado St., Pasadena 1, Calif.

RADIO CONTROL YOUR MODEL

PLANES BOATS CARS

"CUSTOM MIDGET" RADIO ONLY **$9.98**
LICENSE FREE BAND
OPERATES SAME AS $50.00 SETS INCLUDES LONG RANGE TRANSMITTER RADIO, RECEIVER RADIO AND CONTROL ACTUATOR ALL 3 EASY ASSEMBLY WITH OUR PARTS AND PLANS $9.98. PLANS ALONE $1.



DETAILED INFORMATION & RADIO CATALOGUE 25c
SPECIAL "SUPPLY SOURCE DIRECTORY" & $7.00 SUPPLY COUPON . $1.00
BOOK "RADIO CONTROL OF MODEL AIRCRAFT" CONTAINS 14 PLANS $3.98
RADIO CONTROL GARAGE DOOR DETAILS $1.00

RADIOMODELS BOX 36 DEPT. PS BALTIMORE 6, MARYLAND

YES! YOU CAN HAVE A MIGHTY BUILD

Think! Only one in 170,000 can lift his body-weight over his head. Yet anyone can master it. Our methods build you far above average in a few months. Train at home. Build confidence, glowing health, and command the respect that only mighty strength can. Individual instruction. Write for free details.

NATIONAL SCHOOL OF PHYSICAL CULTURE
DEPT. S 55 BOX 2143 ROANOKE, VA.

BUY IT WHOLESALE!

GET UP TO 40% OFF

☆ Start a Buying Service at Home, SPARETIME. GET BIG-NAME MERCHANDISE FOR SELF AND CLIENTS UP TO 40% LESS THAN REG. PRICE. SALES EASY, AS YOU CAN GIVE SIZEABLE DISCOUNTS, STILL MAKE FAT COMMISSIONS. *Post Card brings FREE COPY "The Wholesale Plan".*

FREE! "THE WHOLESALE PLAN"

American Buyers Service

631PS LINDEN AVE., BUFFALO 16, N. Y.

HE-MAN VOICE!

STRENGTHEN *your* voice this tested *scientific* way. Yes—you may now be able to improve the POWER of your speaking and singing voice . . . in the privacy of your own room! Self-training lessons, mostly silent. No music required.

FREE BOOK Write TODAY for Eugene Feuchtinger's great booklet "How to Develop a Successful Voice." It's absolutely FREE! You must state your age. Booklet mailed postpaid in plain wrapper. No salesman will call. Send your name and age RIGHT NOW! **Prefect Voice Institute, 210 S. Clinton St., Studio EV-1, Chicago 6, Ill.**

WARN HUBS STOP FRONT END DRAG ON 4-WHEEL DRIVES

PATENTED

Warn Hubs disengage front differential for use in 2 W.D. range, give 4 W.Ds. amazing pep, getaway, steering ease; save gas, tires; stop front end shimmy! *Automatic* models also stop front axle torque, permit high road speeds in 4 W.D. high range! Use either drive, *anytime!* Select drive needed—*automatically* with Warn Automatic Hubs, *manually* with Warn Locking Hubs. Willys models factory approved, sold *only* by Willys dealers worldwide. Dodge, other 4 W.Ds. at dealers or write—

OVER 60,000 IN USE!

WARN MFG. CO. Riverton Box 6064-B6 Seattle 88, Wash.

make it with 60c worth of sand & cement!

SELL IT FOR $2000

every home a prospect for these "LIFETIME"

CONCRETE INCINERATORS

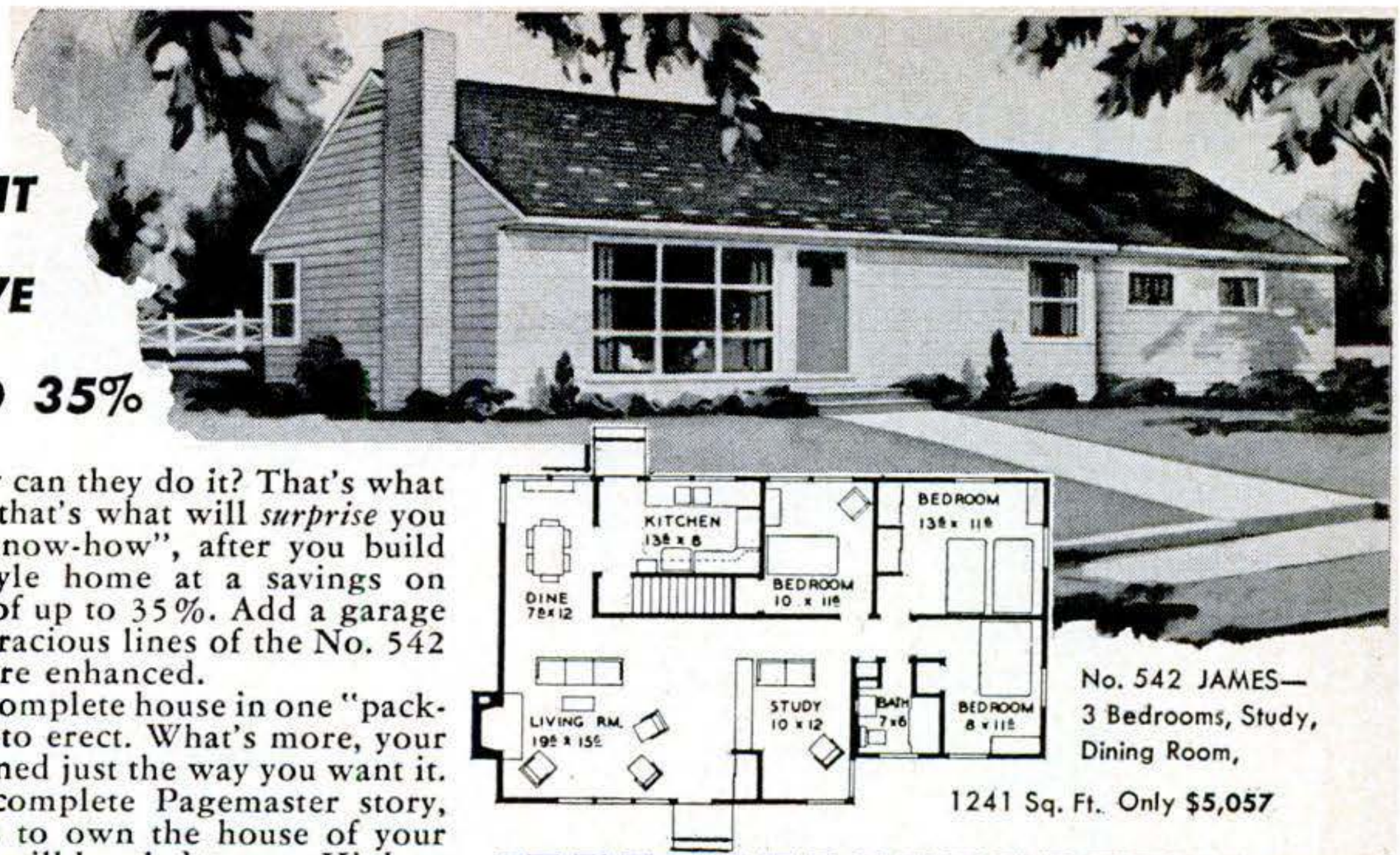
Make big profits manufacturing rust proof, fire proof, almost indestructible concrete incinerators in your own backyard or garage . . . full or part time. Sell to home-owners, hardware, department and garden supply stores. Phila. manufacturer doing big volume with Sears, Roebuck; large department stores. Easy to follow instructions and all needed equipment supplied. Exclusive protected franchise—No competition! Territories going fast. Write immediately for full details.

Dept. PS-55 T. C. TOR, 2113 Bellevue St., Phila. 40, Penna.
Gentlemen:
Rush full information about your concrete incinerator protected franchise offer.

Name_____
Street No. or R.D._____
City_____Zone_____State_____

Copyrighted material

YOU PLAN IT
YOU BUILD IT
YOU SAVE
UP TO 35%



No. 542 JAMES—
3 Bedrooms, Study,
Dining Room,
1241 Sq. Ft. Only **$5,057**

•How can they do it? That's what your friends will ask—that's what will *surprise* you about Pagemaster's "know-how", after you build this gracious ranch-style home at a savings on today's building costs of up to 35%. Add a garage now or later and the gracious lines of the No. 542 James will be even more enhanced.

Imagine receiving a complete house in one "package", all ready for you to erect. What's more, your new home will be planned just the way you want it. Don't delay! Get the complete Pagemaster story, and see how easy it is to own the house of your dreams—at a price you will be glad to pay. Highest quality materials throughout, Pagemaster homes meet and exceed FHA and VA financing requirements.

Write TODAY! Many excitingly new models to choose from. Send 25c in coin for full-color catalog. Let Pagemaster help you from there!

Pagemaster HOMES
302 PIERCE ST., SHAKOPEE, MINNESOTA
Exclusive Northwest Producer "the PM Precut House"

PAGEMASTER HOMES, Shakopee, Minnesota

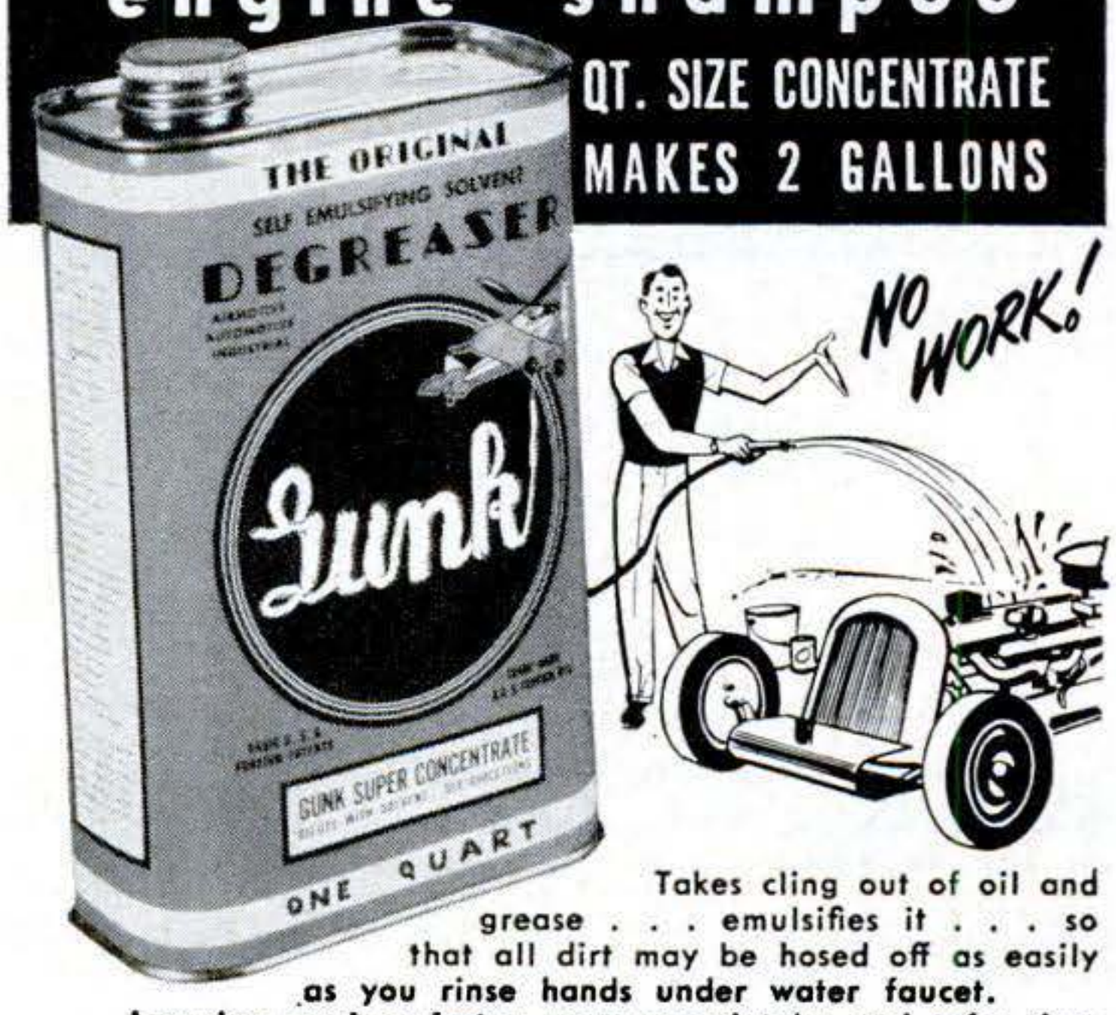
Gentlemen: Send your full-color catalog of beautiful Pagemaster Homes. 25c in coin is enclosed.

NAME_____

ADDRESS_____

CITY_____ STATE_____

DEGREASER!
engine shampoo
QT. SIZE CONCENTRATE
MAKES 2 GALLONS



Takes cling out of oil and grease . . . emulsifies it . . . so that all dirt may be hosed off as easily as you rinse hands under water faucet.

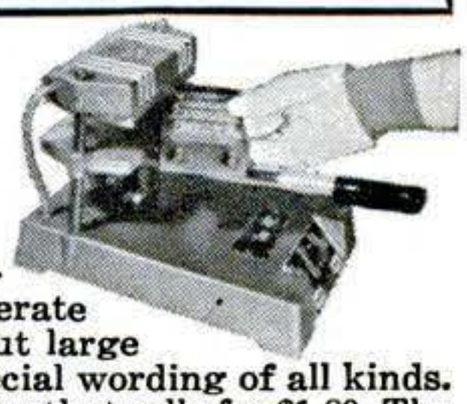
Launders engines faster, more completely, and safer than steam cleaning (warm the engine). Self scouring action brings out factory new appearance . . . provides accurate visual inspection . . . Gunked engines run cooler.

Get Genuine Gunk in quart and larger sizes at better wholesale auto suppliers throughout the country . . . Flatly refuse imitations.

The CURRAN CORPORATION, Lawrence, Mass.

Multi-Million Dollar Business Now Being Split Up Among Home Operators in Small Communities

Inexpensive Table Top Machine Pays Profits UP TO $9.20 AN HOUR



The multi-million dollar Rubber Stamp Business is now being taken over by small home operators throughout the U.S. Men and Women who operate this inexpensive machine can turn out large numbers of Rubber Stamps with special wording of all kinds. Material costing only 27c makes a stamp that sells for $1.80. The machine is easy for anyone to operate. It molds as many as six Rubber Stamps at a time, each with different wording such as names, addresses, notices, stock numbers, prices and other 'copy' needed by offices, factories and individuals. At full capacity, it can earn as much as **$9.20 an hour for the operator!** You don't need experience to get into this big profit business at home. We supply everything, including complete instructions and eight ways to get orders for stamps coming in fast. Start making up to $9.20 in one hour right away. We'll mail full particulars FREE and no salesman will call. Be first in your locality. Rush coupon.

RUBBER STAMP DIV., 1512 Jarvis Ave., Dept. 3E, Chicago 26, Ill.

RUBBER STAMP DIV., Dept. 3E
1512 Jarvis Ave., Chicago 26, Ill.
FREE!

Please mail all facts showing how I can get started in the profitable Rubber Stamp business at home in spare time. Everything you mail me is FREE and no salesman will call.

NAME_____

ADDRESS_____

CITY_____ Zone____ STATE_____

Copyrighted material

MECHANICS

—EARN BIG PAY—

Industry needs skilled mechanics. GREER, leader for more than 50 years in the Trade School field, can train you quickly—You "learn by doing," using the finest equipment, under the supervision of expert technicians.

APPROVED FOR CIVILIANS ☐ OR GI'S ☐

—CHOOSE YOUR TRADE—

- ☐ DIESEL MECHANICS.....20 Weeks
- ☐ AUTOMOTIVE MECHANICS.....20 Weeks
- ☐ BODY & FENDER REPAIR.....16⅔ Weeks
- ☐ GAS ARC WELDING.....4 to 12 Weeks
- ☐ REFRIGERATION .....13½ Weeks
- ☐ AIR-CONDITIONING .....8⅓ Weeks
- ☐ MACHINIST TRADE.....30 Weeks
- ☐ ADVANCED MACHINIST (includes tool & die).....32½ Weeks
- ☐ PIANO TUNING & REPAIR.....36 Weeks

CHOOSE YOUR ENGINEERING COURSE

- ☐ DIESEL AUTOMOTIVE ENGINEERING .....2 Years
- ☐ REFRIGERATION & AIR CONDITIONING ENGINEERING .....18 Months

Free employment help. Start your career with Greer by checking your interest above and mail coupon for complete information at no obligation.

NAME_____AGE____

STREET_____

TOWN_____ZONE____STATE_____

Established 1902 — Over 50,000 Graduates.

GREER SHOP TRAINING

Box E, 2238 S. Michigan Ave.
Chicago 16, Illinois

The New Model 70 UTILITY TESTER

FOR REPAIRING ALL ELECTRICAL APPLIANCES MOTORS • AUTOMOBILES • TV TUBES

As an electrical trouble shooter the Model 70:

- Measures A.C. and D.C. Voltages, A.C. and D.C. Current, Resistances, Leakage, etc.
- Will measure current consumption while the appliance under test is in operation.
- Incorporates a sensitive direct-reading resistance range which will measure all resistances commonly used in electrical appliances, motors, etc.
- Leakage detecting circuit will indicate continuity from zero ohms to 5 megohms (5,000,000 ohms).
- Will test toasters, Irons, Broilers, Heating Pads, Clocks, Fans, Vacuum Cleaners, Refrigerators, Lamps, Fluorescents, Fans, Switches, Thermostats, etc.
- Will test all TV tubes for open filaments, inter-element shorts, burned out tubes, etc.

As an Automotive Tester the Model 70 will test:

• Both 6 Volt and 12 Volt Storage Batteries • Generators • Starters • Distributors • Ignition Coils • Regulators • Relays • Circuit Breakers • Cigarette Lighters • Stop Lights • Condensers • Directional Signal Systems • All Lamps and Bulbs • Fuses • Heating Systems • Horns • Also will locate poor grounds, breaks in wiring, poor connections, etc.

Handsome round-cornered molded bakelite case, 3⅛" x 5⅞" x 2¼". Complete with all test leads. Also included is a 64 page book giving detailed instructions for testing all electrical appliances, automotive equipment, TV tubes, etc. Only **15.85**

SHIPPED ON APPROVAL

NO MONEY WITH ORDER—NO C.O.D.

Try it for 10 days before you buy. If completely satisfied then send $3.85 and pay balance at rate of $4.00 per month for 3 months — No Interest or Finance Charges Added! If not completely satisfied, return to us, no explanation necessary.

MOSS ELECTRONIC DIST. CO., INC.
Dept. D-130, 3849 Tenth Ave., New York 34, N. Y.

Please rush 1 Model 70. I agree to pay $3.85 within 10 days after receipt and $4.00 per month thereafter.

Name_____

Address_____

City_____Zone____State_____

"BEFORE"

NU-TOP

for your Convertible

ONLY $3.00

Give your faded Convertible Top the

NU-TOP Dressing

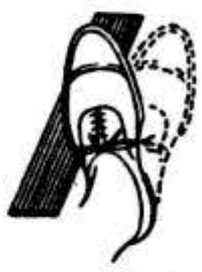
"AFTER"

that is guaranteed fadeproof. Restores original lustrous smooth, even black color. Sheds water like a duck. Contains "SILICONE" for Durability and Long Wear. Will not crack, chip, peel or stiffen fabric. Easily applied with brush or spray in minutes.

ONLY $3.00 (Postpaid)
Or C.O.D. plus postage.

Money Back Guarantee if not completely satisfied.

NU-TOP, Box 757 Hendersonville, N. C.



Auxiliary Accelerator..

LEFT FOOT PEDAL

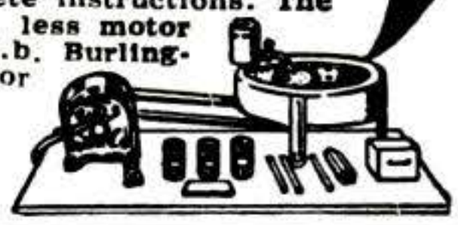
Step on the gas with either foot with equal ease. Drive relaxed. Guaranteed for the life of the car—which originally installed on. FITS ALL CARS.

PRICE $6.95 Delivered to You — Pard. ORDER FROM R. V. LEHNER, Ness City, Kansas

---

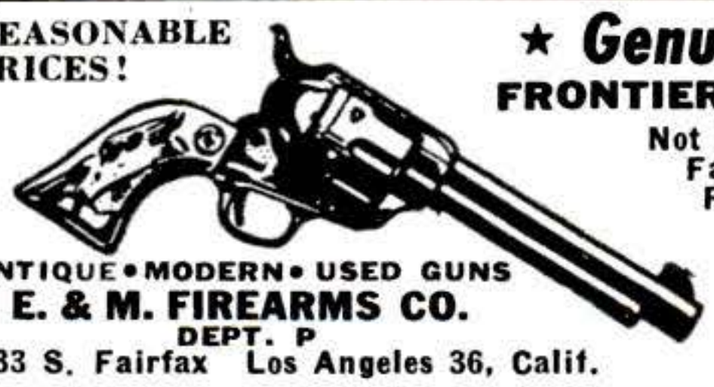
make your own *Gems* 29.50 F.O.B

The Gem Maker comes complete with all necessary equipment, including a super-charged diamond blade for sawing, and all wheels for grinding, shaping and polishing; also complete instructions. The complete equipment as shown, less motor and belt, for only $29.50, f.o.b. Burlington, Wisconsin. Write today for information and literature.



B & I MANUFACTURING CO.
Dept. S Burlington, Wis.

REASONABLE PRICES!



★ *Genuine* COLT ★
FRONTIER REVOLVERS

Not Imitations but Famous Original Rare Old Colts

- FRONTIERS
- BISLEYS

ANTIQUE • MODERN • USED GUNS
E. & M. FIREARMS CO.
DEPT. P
333 S. Fairfax Los Angeles 36, Calif.

SEND 50c FOR CATALOG

ARTHRITIS—RHEUMATISM VITAL FACTS EXPLAINED

FREE DESCRIPTIVE BOOK

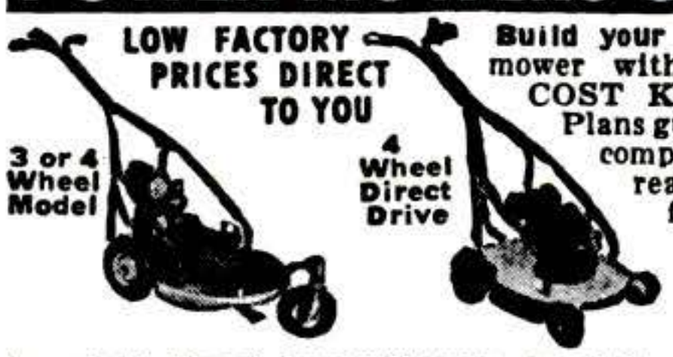
How crippling deformities may be avoided. This amazing FREE BOOK explains why ordinary methods give only temporary relief —if that. Describes a drugless method of treatment successfully applied in thousands of cases. Write for this 44-page FREE BOOK today. No obligation.

BALL CLINIC, DEPT. 36 EXCELSIOR SPRINGS, MO.

POWER MOWERS & KITS

FREE PLANS

LOW FACTORY PRICES DIRECT TO YOU



Build your own quality mower with our LOW COST KITS, Parts, Engines. Free Plans guide you. 3 and 4 Wheel Kits, complete. Parts precision finished, ready to use. Write TODAY for Free Plans, Low Prices, Parts List and Guarantee.

3-WHEEL KIT NO. T-800

America's Finest Power Mowers completely assembled in 3 and 4 wheel models. Belt or direct drive. 18" and 20" sizes. Nationally known make engine. Latest improved features, sturdy construction and money back guarantee fully described in color folder. Write today.

▲ **TRIANGLE MANUFACTURING CO., Dept. S-5 Fort Scott, Kansas**

Copyrighted material

MONEY ROLLS IN

This little machine can make you $5 an hour!

Get facts **free** about amazing money-making **Warner Success Plan** that shows you every easy step in completely charted path to personal independence, and steady, growing income—with your home as headquarters. This proved and tested Plan is working like magic. It's backed by an old, reliable company. And I send you the Plan to read without asking you to risk one penny.

PAYS OFF 10 to 1

on cost of material. Even in spare time you can turn out enough work to pay $5 an hour for your time. Necessary supplies amount to only 60 cents.

QUICK CASH WAITING

Demand for *Metalized* Baby Shoes, other keepsakes is growing daily. Our *Tested Plan* shows How to do the Work, How to Bring in Business. How to Make as much as $5.00 an Hour, spare or full time. Big, steady profits waiting. Send postcard or letter for FREE Facts. Write

JAMES C. MASON, Warner Electric Co., 1512 Jarvis Ave., Chicago 26, Illinois

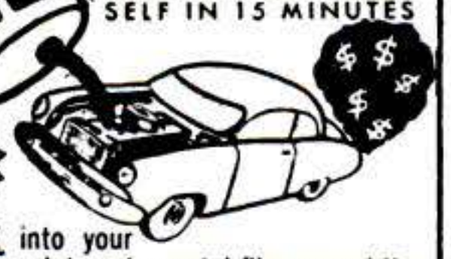
MORE POWER MILEAGE SPEED

GUARANTEED TOP CAR PERFORMANCE FOR AT LEAST 15000 MILES WITH EACH TREATMENT

STOP BURNING OIL

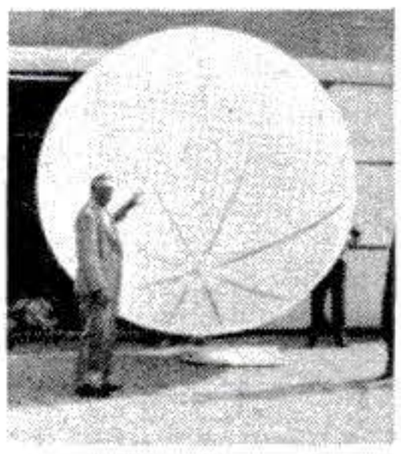
SAVE $75 ON OVERHAUL, DO IT YOURSELF IN 15 MINUTES

INCREASE COMPRESSION PICK UP



Just put our AUTO LIFE into your engine. It instantly goes to work to put a metal film around the rings and cylinder walls. With just 15 minutes of your time you have the equivalent of an expensive overhaul, for the fraction of the cost. It's so easy, anyone can do it. Nothing else to buy. SEND NO MONEY. We will send you AUTO LIFE C.O.D. plus postage. Or send $3.95 NOW and receive it postpaid. If after trying AUTO LIFE for 30 days, your car doesn't STOP OIL BURNING, GET MORE PEP, BETTER GAS MILEAGE and are not completely satisfied, we will immediately refund your money.

AUTO CHEMICAL LIFE IND., 230-G DIVISION ST., NEW YORK 2, N. Y.



GIANT BALLOONS

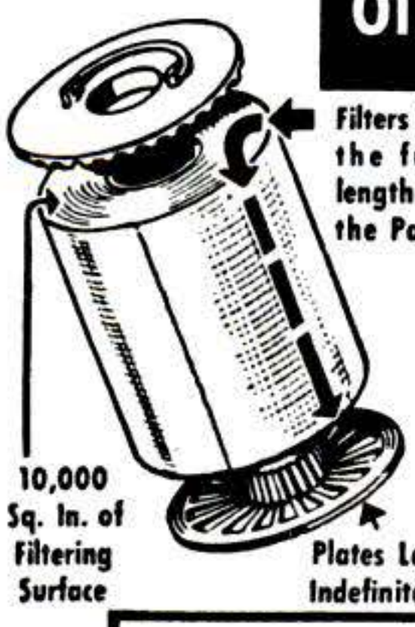
They're really BIG—surplus U.S. Govt. (new overage) Neoprene weather, target balloons. GREAT FUN in the backyard; at parties, picnics, dances, fairs. TERRIFIC for high school and college PROMS. They attract BIG CROWDS to business openings, civic events, conventions, exhibitions, trade shows. ORDER TODAY! Approx. inflated sizes:

3 ft. dia., 49c—6 ft. dia., 99c
13 ft. dia., $1.59—20 ft. dia., $1.95

Postage paid on prepaid orders. Calif. residents please add sales tax.

VOLUME SALES CO., War Assets Div.
Dept. S-555 3930 Sunset Blvd., Los Angeles 29, Calif.

OIL FILTER REFILLS...10c

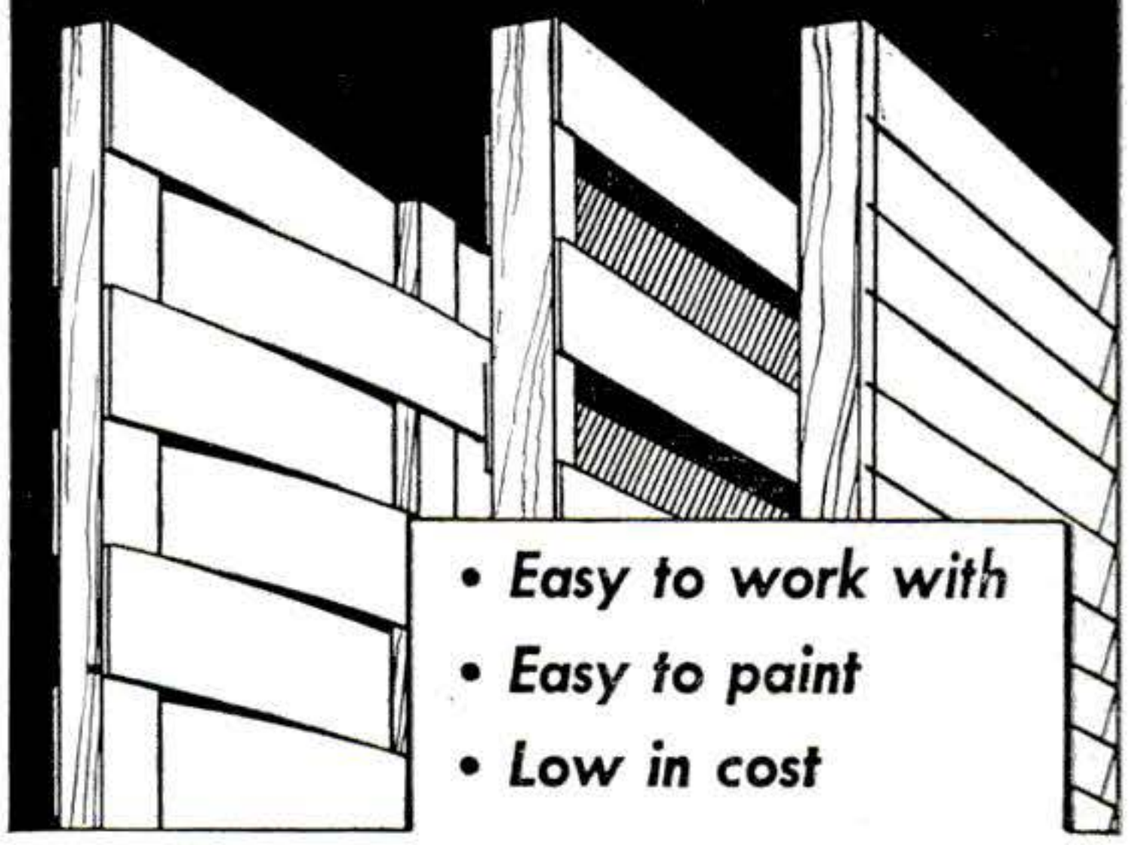


Here's News! Ordinary toilet paper makes an ideal oil filter. Laboratory tests prove it cleans oil faster and better than popular makes of filter elements. All you need is a simple set of **RETLIF ADAPTER PLATES**...and you can start using ordinary toilet paper rolls in your present oil filter. For proof and descriptive literature, send name and address to:

RETLIF CORPORATION, Dept. 149
915 N. Highland Ave., Los Angeles 38, Calif.

FREE PLANS!

Show How to BUILD FENCES with MASONITE PRESDWOOD



Ideal for carports, patios

Use one of these modern designs for a fence that's "different" yet practical and inexpensive. Build with Masonite Tempered Presdwood®...the strong, smooth, all wood hardboard panels that never split, splinter or crack. Weather won't bother them. Cut and fit like wood; have no knots or grain. Take paint and hold it beautifully.

See your lumber dealer for Tempered Presdwood. Send coupon today for free plans and other valuable tips on using Presdwood around the house.

Choose this Man—He makes the difference

MASONITE PRESDWOOD

PANEL PRODUCT OF MASONITE® CORPORATION

MASONITE CORPORATION,
Dept. PS-5, Box 777, Chicago 90, Illinois

Please send me, free, your fence plans and Masonite Presdwood "Idea Book."

Name.....

Address.....

Town.....Zone.....

County.....State.....

Copyrighted material

NEW HOME WELDING TOOL

Look! No Hands.

Now, weld at home with "Lincwelder 100". No previous experience or training necessary! New do-it-yourself welding method makes working with metal as easy as working with wood.

FREE SELFWELD GUIDE

Learn how to build metal furniture, farm tools and home equipment . . . Make repairs solder, torch heat, cut metal.

MAIL COUPON NOW!

PRICED ONLY $99.00

F. O. B. Cleveland, Ohio

Complete "Selfweld" Kit includes "Lincwelder 100" welding shield, cable, electrode holder and special "Selfweld" electrodes.

THE LINCOLN ELECTRIC COMPANY
Dept. 3002 • Cleveland 17, Ohio

Name _____

Address _____

City _____ State _____

☐ Send me complete "Selfweld" Kit. Enclosed is check_____money order_____for $99.00.

☐ Send free "Selfweld" Guide giving more information on do-it-yourself welding.

Will YOU Be Next To FIND URANIUM

with a **Superior Quality DETECTRON INSTRUMENT!**

Many strikes have been made with Detectron instruments. YOU COULD BE NEXT! When you buy . . . be sure to get exactly the right instrument for your purse — and purpose! Detectron builds superior quality into every instrument. Prices start at $37.50. Write for FREE details and **Make Your Selection From The WORLD'S MOST COMPLETE LINE of PROSPECTING INSTRUMENTS**

The DETECTRON Corp. Dept. XS
5528 Vineland Ave., No. Hollywood, Calif.

Please send FREE information on prospecting instruments.

Name _____

Address _____

City _____ State _____

* Trade Mark

ARTHRITIS?

I have been wonderfully blessed in being restored to active life after being crippled in nearly every joint in my body and with muscular soreness from head to foot. I had Rheumatoid Arthritis and other forms of Rheumatism, hands deformed and my ankles were set.

Limited space prohibits telling you more here but if you will write me I will reply at once and tell you how I received this wonderful relief.

Mrs. Lela S. Wier
2805 Arbor Hills Drive—70
P. O. Box 2695 **Jackson 7, Mississippi**

LEARN RADIO & TV AT HOME

CHEAP

Don't pay for expensive parts and correspondence. A *Complete Course* in *Radio Servicing*, in 22 lessons. A *Complete Course* in *Television Servicing*. Either Course just like a $200.00 correspondence course. Teaches you, in a few short weeks, to repair any radio or TV set. *Own your own business.* Be an expert Radio & TV Technician. Complete Radio Servicing Course $6.50. Complete TV servicing course $7.50. Both courses $12.75 C.O.D. you pay postage. Check or Money Order, we pay postage. *Rush order now.*

TIBBS ENGINEERING, Box 752, Memphis 2, Tenn.

ADDRESS POSTCARDS AT HOME!!

write **BOX 14, BELMONT, MASS.**

Build Your Own OUTDOOR FIREPLACE

You can enjoy luscious steak frys, roasts and barbecues economically in your own backyard with the revolutionary new ROSTRO "Build-It-Yourself" grill unit. Information FREE—or send a dime for six ornamental outdoor designs and 25 delectable outdoor cooking recipes. Dealer inquiries invited.

ROSTRO SPECIALTIES CO. Coldwater 2, Michigan

SOCK-O

SUPER SLINGSHOT

SILENT • RIFLE FAST • POWERFUL • ACCURATE

Great for small game and target shooting! 45 pound pull. Big, sturdy stock. Lively, raw rubber. Sweet shooting. Free: 50 steel balls (.25 calibre), extra rubber and target. Sent by return mail. Guaranteed. *Approved by American Small Game Slingshot Association*

SOCK-O, Box 111, So. San Gabriel, Calif.

See the Greatest Show on Earth with this

GIANT ASTRONOMICAL TELESCOPE

$15.00 FULL PRICE

Delivered ready for use. Has 45X, 75X and 100 power individually mounted eyepieces with brass focusing tube plus sun projector lens for observing sun spots and solar storms. Steel telescope tube 50 in. long. Rigid 6 ft. tripod adjustable to any height. Steel forked mounting with closely machined aluminum tripod head assembly assures extra fine adjustments. This professional type instrument provides full power with clear vision at all times. See the moons of Jupiter, our own moon, planets, milky way, double stars, star clusters, etc. All for only $15.00 FOB Mattituck. Sent express. COD orders require $5.00 deposit. Satisfaction guaranteed. 200X and 400X eyepieces available at $2.00 ea.

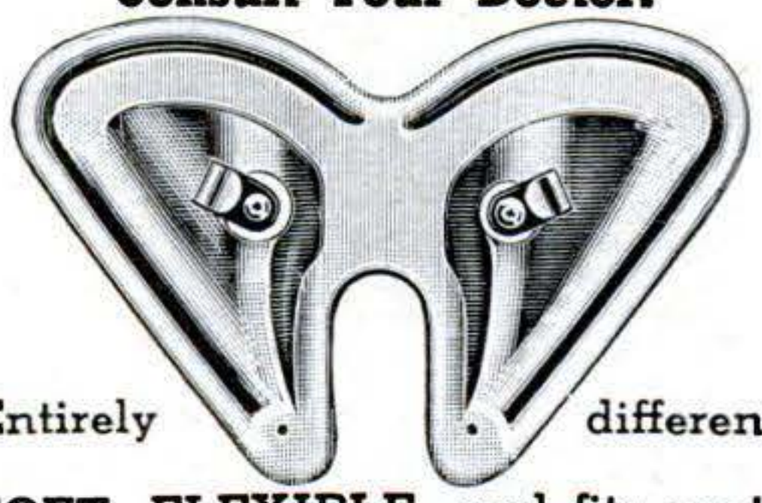
SUFFOLK SCIENCE SERVICE
Dept. ATP-5 MATTITUCK, N. Y.

Copyrighted material

If Ruptured

For lasting relief your rupture must BE HELD BACK DAY and NIGHT.

Consult Your Doctor.



Entirely different

SOFT, FLEXIBLE, and fits neat as a glove. The famous Miller saves you TIME, MONEY, DISAPPOINTMENT. Write for my FREE booklet today.

FRED B. MILLER Manufacturer
Dept. P-A Hagerstown, Maryland

TREMENDOUS Profits with Hagen's Exclusive TEAR GAS PENCIL!

This Tear-Gas Pencil discharges smothering clouds of tear gas to instantly stop, stun and incapacitate the most vicious man or beast, an effective substitute for dangerous firearms; leaves no permanent injury. No selling experience needed. Handle as a profitable sideline . . . soon you'll sell it full time. Start now! Send $4.25 for complete demonstrating kit of Automatic Tear Gas Pencil, 10 demonstrators & 3 Powerful Tear Gas Cartridges. Not sold to minors.

SELLS EASY TO SERVICE STATIONS SMALL STORES LOAN OFFICES BANKS, HOMES

HAGEN SUPPLY CORP., Dept. P-55, St. Paul 4, Minn.

LAW

Men and Women **STUDY AT HOME** for Business Success and **LARGER PERSONAL EARNINGS**, 44 years expert instruction—over 114,000 students enrolled. LL.B. Degree awarded. All text material furnished. Easy payment plan. Send for FREE BOOK —"Law and Executive Guidance"—NOW!

AMERICAN EXTENSION SCHOOL OF LAW
Dept. D-5, 664 N. Michigan Ave., Chicago 11, Illinois

EXCLUSIVE DOUBLE-BEARING

HEAVY DUTY PUMPS

IRRIGATE - DRAIN - CIRCULATE - SPRAY

Up to 7,500 GPH; 1,000 GPH 60' high; or 3,000 GPH from 25' well. Use 1/4 to 1 HP motor. 1 1/4" inlet; 1" outlet. Stainless shaft. 2 oil-less bronze bearings. Won't rust. **TYPE X— $10.95**

TYPE XB—Ball bearing model. Best for belt drives..... **$12.95**

Postpaid if cash with order. (West of Miss. add 50c)

MONEY BACK GUARANTEE

Centrifugal and Gear Pumps in All Sizes

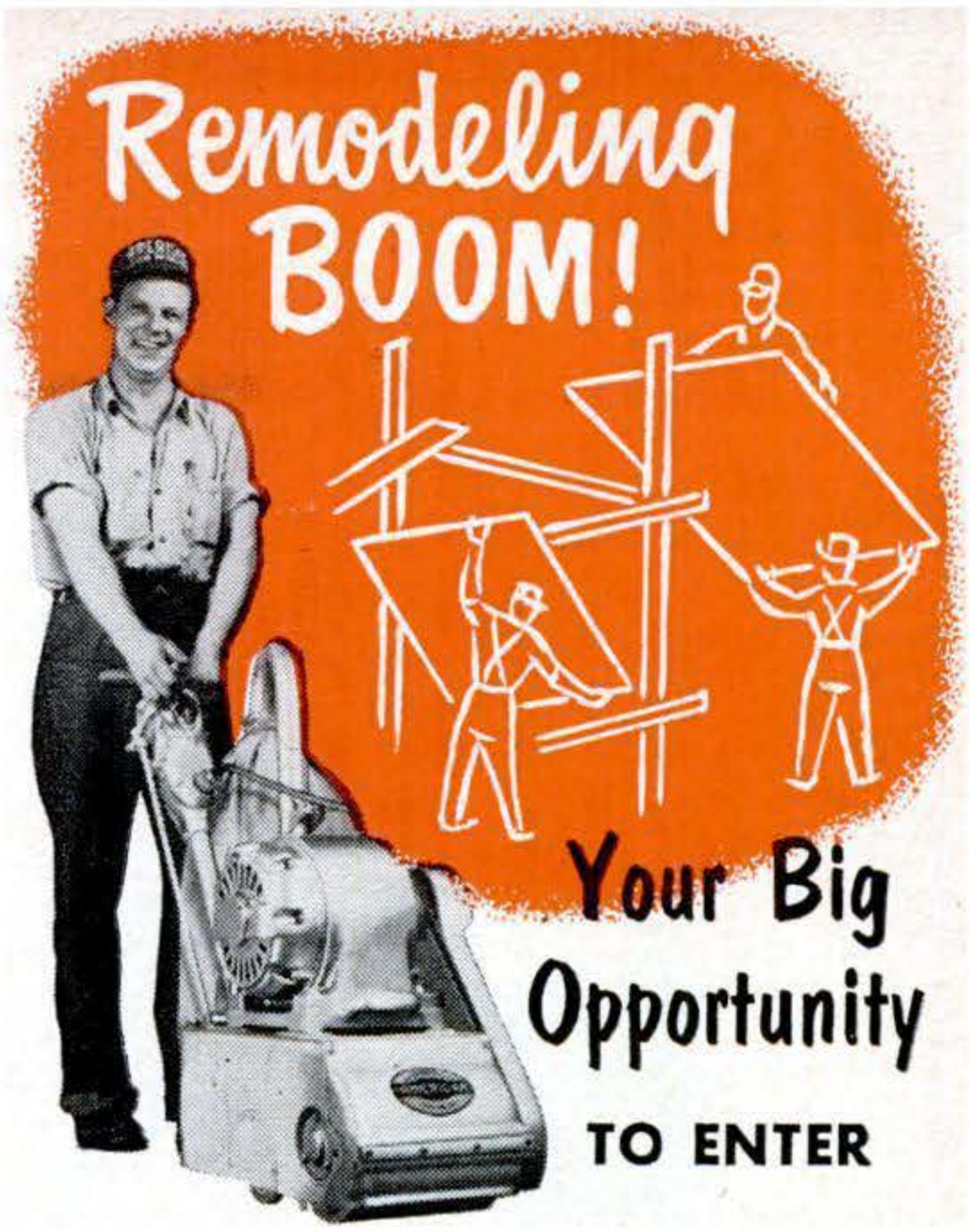
LABAWCO PUMPS Belle Mead 4A, N. J.

---

10 WAYS TO MAKE MONEY IN YOUR OWN BUSINESS!

Ambitious? We establish you in your own business without capital or experience. Spare or full time. Catalogues without our name furnished. No stock needed because we ship under your name, either paid or C.O.D. Up to 74c profit on each dollar sales. Sell direct or to agents. Mail postcard for complete details FREE. No obligation.

TOPVAL CORP., Lindenhurst 47, N. Y.



FLOOR SURFACING PROFESSION

as YOUR OWN BOSS at BIG PAY!

● Today—twenty million dwelling units thirty years old and more need remodeling and repairs including resurfacing of old and worn floors. Also, new construction continues to boom. This means—a lifetime opportunity to establish yourself in a fine business that pays you well . . . sanding floors with an easy-to-run American machine! Beautiful results . . . make old floors like new! Prospects everywhere want benefits of properly surfaced floors—easier to clean, extends life of floor, increases pride of ownership, makes house more valuable and easier to sell.

Be your own boss—*now!* Steady year 'round work where profits are limited only by the amount of time you are willing to spend. Unlimited full or part time opportunities. No schooling or special skills required. Only small investment in sander gets you started. Send coupon for "money-making booklet" entitled "Opportunities in Floor Surfacing"—enclose 25c in coin or stamps to cover handling.

AMERICAN

Performance-Proved Machines . . . Nation-Wide Service

SEND!

The American Floor Surfacing Machine Co.
532 So. St. Clair St.
Toledo 3, Ohio.

Here is 25c in stamps or coin for booklet "Opportunities in Floor Surfacing," telling me how I can start my own floor sanding business.

Name.....

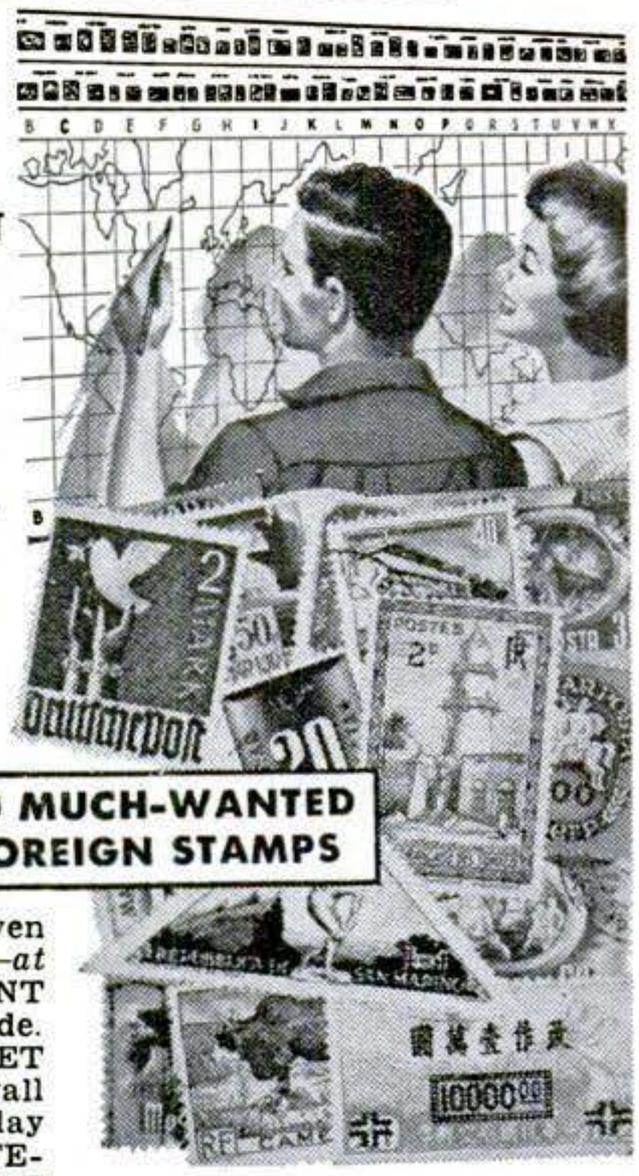
Street.....

City.....State.....

Copyrighted material

AMAZING STAMP OFFER!

Free



TO GET NAMES FOR OUR MAILING LIST

1 **WORLD MAP**—authentic 3 ft. sq. Mercator projection map, used by air and sea navigators—yours FREE!

2 **STAMP FINDER**—identifies stamps around the world—no matter how strange their script letters—yours FREE!

3 **ENYCLOPEDIA OF STAMP-ISSUING COUNTRIES**—Tells area, location, population, parent country, etc.--yours FREE!

Also FREE: 30 MUCH-WANTED FOREIGN STAMPS

NOW you can identify even the strangest stamps—*at a glance*—with this GIANT world map and stamp guide. Opens up to 3 SQUARE FEET to make a big handsome wall map you'll be proud to display in your room. THE PHILATELIC WORLD MAP & GUIDE is well-known among stamp fans all over the country. Complete and up-to-date. Locates the tiniest, most remote stamp-issuing countries in the world. While our supply lasts—we'll send it to you FREE. But that's not all! You *also* get—FREE—30 colorful foreign stamps—from exciting, far-off places like San Marino, Djibouti, etc. Included is Chinese anti-Communist stamp with face value of $10,000 in Nationalist money! Also interesting stamp offers for your inspection. No obligation. But hurry. Offer may be withdrawn at any time. Send your name and address, with 10c to cover postage and handling, to **LITTLETON STAMP CO., Dept. 5-PS, Littleton, New Hampshire.**

PUMP WATER *FAST!*

Drains Wash Tubs, Cellars, Cisterns. Famous #7 pumps 4000 gph. 700 gph. 95' high or 2400 gph. from 25' well. Sturdy rustproof alloy metal. Six blade impeller. ¾" inlet, ½" outlet. Standard pipe threaded. Uses any ⅛ to 1 H.P. motor. Will not leak or clog. Ironclad guarantee. Send check, M.O., or sent C.O.D. **$8.95 IN U.S.**

Irrigate, Fill Tanks, Draw Well Water. Heavy duty #8 pumps 9500 gph. 1200 gph. 95' high 5000 gph. from 25' well. Rustproof alloy metal. 8 blade impeller. 1¼" inlet, 1" outlet. Standard pipe threaded. Uses ¼ to 1 H.P. motor. Oilless bronze bearings. Will not leak or clog. Ironclad guarantee. Send check, M.O., or sent C.O.D. **$11.95 IN U.S.**

Extra Large Capacity. Powerful #9 pumps 15,000 gph. 3000 gph. 95' high 7000 gph. from 25' well. Rustproof alloy metal. 8 blade impeller. 1½" inlet, 1½" outlet. Standard pipe threaded. Uses ½ to 2 H.P. motor. Will not leak or clog. Ironclad guarantee. Send check, M.O., or sent C.O.D. **$14.95 IN U.S.**

Free Catalogue—Gear Pumps, Large Centrifugal Pumps, Deep and Shallow Well Pumps, Sump Pumps.

MOORE MANUFACTURING CO.
SWEDESBORO 2, NEW JERSEY

NOW YOU CAN BUY
A PROFESSIONAL TYPE

GEIGER COUNTER

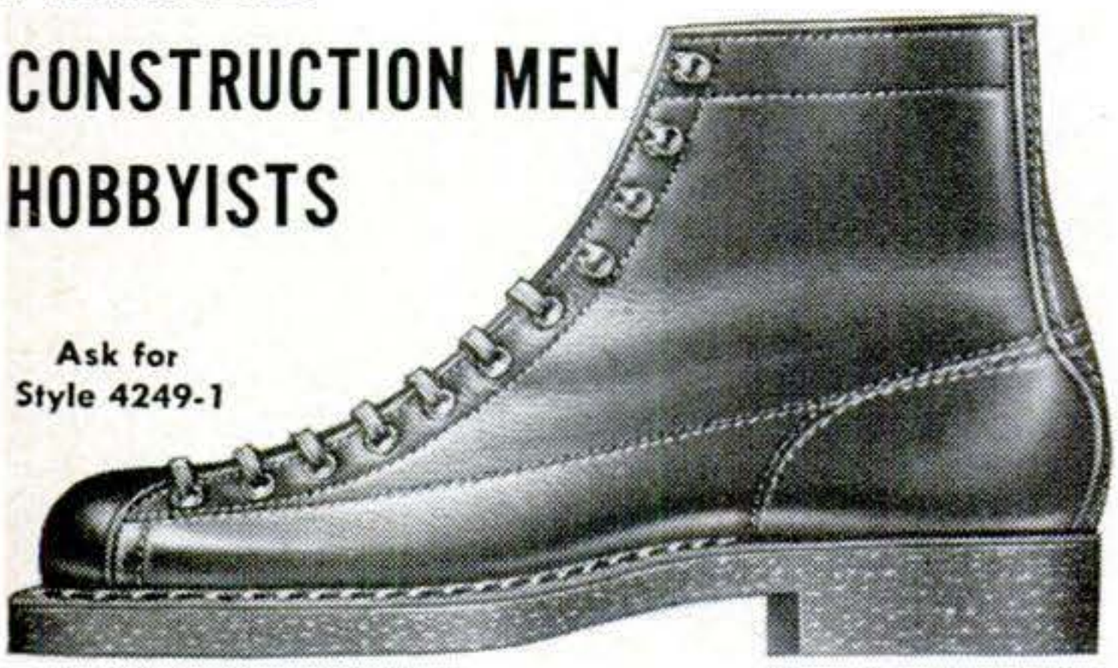
with transistor-amplified, loud speaker

Write for Bulletin VT-277

Not a toy—not a gadget. Vic-Tic is a full size professional Geiger Counter with a transistor-amplified, loud speaker, adjustable in tone pitch. The ideal instrument for uranium exploration. Weighs only 3 pounds and has 4 sensitivity ranges: (1000, 10,000 and 100,000 c/m, plus extra sensitive background range). Furnished with an aluminum wall, counter tube, batteries, shoulder-strap, instruction manual and Radio Active Sample, complete for $125.00. Additional accessories available include SIX PACK of high sensitivity Bismuth Geiger Tubes (15 times more sensitive than standard tube), hand probe, and deep-hole probe can readily be plugged into built-in jack. Vic-Tic was designed by the same staff of engineers who developed the first instrumentation for Atomic Science. Fully Guaranteed. Order now for immediate shipment.

VICTOREEN INSTRUMENT CO. 5808 HOUGH AVENUE CLEVELAND 3, OHIO

CARPENTERS
PLUMBERS
CONSTRUCTION MEN
HOBBYISTS



Ask for Style 4249-1

. . . Designed with the working man in mind! Note how the shoe is laced from top to toe—allows you to adjust laces for most comfort whether you're working in a squatting or standing position. Long-wearing cork composition non-slip soles. Genuine rawhide laces. C&E 6-11 & 12

Peters Diamond Brand CRAFT SHOES

only $95 freight incl. Write For FREE FOLDER

12 ft. SPORTBOAT KIT

Includes ready-cut parts and hardware. Models low as $39.00 freight incl.

TAFT MARINE WOODCRAFT
Dept. PS-5, 636 39th Ave. N.E., Minneapolis 21, Minn.

World's Largest Selection of Home-Study Books, Courses, Texts . . . all at low money-saving prices! Train at home for locksmithing, radio, shoe repairing, watch repairing, real estate, mail order business, piano tuning, short-cut mathematics, criminology, massage, upholstery, hundreds of other money-making subjects. Write today for FREE "Success Catalog." No obligation. Nelson-Hall Co., 210 S. Clinton St., Dept. 8EV-1, Chicago 6, Ill.

Get This FREE CATALOG

When Writing to Advertisers Please Mention Popular Science

IF — YOUR CAR ENGINE PINGS . . .
YOU NEED PYROIL

HERE'S WHY—PYROIL "A" in your gas tank will stop pre-ignition ping. PYROIL corrects the cause, restores new car pep and power, increases mileage. It prevents valve burning, eliminates overheating.

PYROIL . . . It doesn't cost . . . It PAYS!

Get PYROIL "A" Today Only 25c

HEAT-PROOF UPPER ENGINE LUBRICANT

• See your favorite service station, garage or dealer. Or write for exciting trial offer. Pyroil, Dept PS-55, La Crosse, Wis., U. S. A.

PYROIL
SUPER LUBRICANTS WORLD FAMOUS SINCE 1929

Copyrighted material

INSURED TIRE SERVICE
POPULAR BRANDS

SPECIAL! Deduct 10% on orders for Two or More used tires

FREE INSURANCE POLICY given with each used tire sold. We guarantee the amount of service you pay for.

NOWHERE CAN SUCH QUALITY BE FOUND AT SUCH LOW PRICE!

YOU CAN'T LOSE!!

Super Quality — Rugged Performance — 15 Months Insured Service

600x16	$3.65	670x15	$3.95	700x16	$4.45	760x16	$4.75
650x15	3.85	670x16	4.05	710x15	4.35	820x15	4.95
650x16	4.25	700x15	3.95	760x15	4.45	550x17	4.65

Supreme Quality — Nothing Finer — 30 Months Insured Service

600x16	$5.25	475x19	$5.45	700x15 *6*	$10.45	700x20	$12.50
600x16 *6*	6.75	640x15	4.95	750x16 *8*	15.95	750x20 *8*	15.50
650x16	5.75	670x15	5.35	700x17	11.95	750x20 *10*	17.50
650x16 *6*	7.25	710x15	5.45	750x17	16.45	825x20	21.50
700x16	6.35	760x15	5.95	750x15	10.95	900x20	19.95
750x16 *6*	8.45	800x15	6.35	30x5	11.25	1000x20	20.45
550x18	4.95	820x15	6.35	600x20	10.95	1100x20	21.25
550x17	4.75	550x15	5.35	650x20	11.75	1000x22	21.95
650x15	5.25	670x16	5.15	32x6 *8*	11.95	1100x22	22.75
700x15	5.35	700x16 *6*	10.25	32x6 *10*	12.75	1100x24	25.95

Whitewalls $1.00 extra

MIDLAND TIRE SALES

Speedy shipments on Mail Orders. F.O.B. Chicago. Insurance Policy sent with each order. Deduct 10% on orders for 2 or more used tires. Send CHECK or MONEY ORDER. No COD's.

3701 S. Normal, Dept. SS-31, Chicago 9, Ill.

DELAYED ACTION SWITCH

Safety for Your Family

Turn off the switch. Light stays on long enough to let you walk from one room to another—from garage to house—down front steps. No danger from prowlers. No tripping over objects.

Cut Down on Accidents

No more stumbling or groping in the dark. Walk in the light, there's plenty of time to get where you're going.

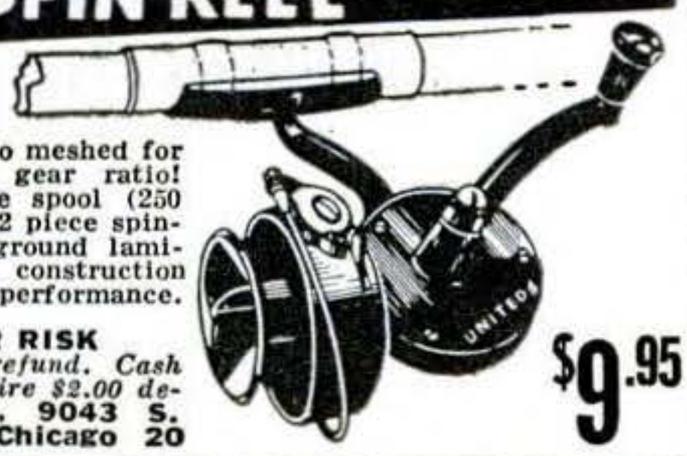
Easy to Install

Fits standard switch box. Screwdriver is all you need. Approved by UL and CSA. Sold through dealers and jobbers. If your dealer cannot supply, send $3.00 for one switch—2 for $5.00 postpaid. Satisfaction guaranteed. Order several today! Literature on request. Jobbers, dealers, write

Delayed Light Division
3100 Fenton Rd. Flint 7, Mich.

A complete Spin Fishing Outfit, only $9.95!

GLASS SPINNING ROD *and* SPIN REEL



Positively **no backlash** with UNITED'S quality spin outfit. Offer includes a sturdy, featherweight aluminum reel, syncro meshed for smoothest performance. 3.22 gear ratio! Full bail pickup. Unbreakable spool (250 yd. capacity). **AND** a 6½ ft., 2 piece spinning rod, of precision taper-ground laminated glass fibre. Exclusive construction features assure championship performance. A **bargain** buy!

USE 10 DAYS AT OUR RISK

If not satisfied return for refund. Cash orders prepaid. C.O.D.'s require $2.00 deposit. **UNITED PRODUCTS, 9043 S. Western, Dept. RS-406, Chicago 20**

$9.95

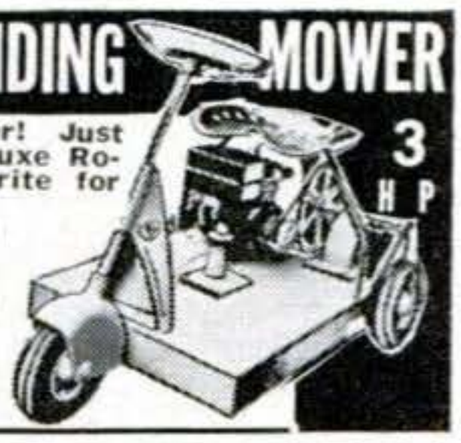
Also ADULT 2 Passenger "Eshelman" SPORT CAR

1/5 the cost of any other auto

70 Miles per Gal.

Free Catalog

ESHELMAN RIDING MOWER



Better, Faster, Easier! Just ride along on this deluxe Rotary Lawn Mower. Write for Free Catalog.

Also Garden Tractors from **$69**

ESHELMAN, Dept. M-45. 109 Light St., Baltimore 2, Md. 333 North Michigan Avenue, Chicago 1, Illinois. 6087 Sunset Boulevard, Los Angeles 28, Calif.

NEW FALSE PLATE

FROM YOUR OLD ONE IN **18** HOURS

AS LOW AS **$14.95**

Send us your old broken, cracked or loose plates and we'll transform them into new lightweight wonder plastic plates. NO IMPRESSIONS needed with our revolutionary method. We use your own old plates. We remake them completely in only 18 hours. Missing teeth carefully matched and replaced. We GUARANTEE TO SATISFY YOU OR REFUND YOUR MONEY.

SEND NO MONEY—Send us your name today and we'll RUSH COMPLETE DETAILS. Begin to enjoy life right now. Clip this Ad; save it and send for free facts.

CHICAGO DENTAL PLATE LABORATORY • Dept PS-555
30 N. Dearborn St. • Suite 807 • Chicago 2, Ill.

Give your family FREEDOM FROM FEAR OF FIRE

When fire strikes, the Edwards Home Fire Alarm can save *your life . . . and your family's!* Stands guard over your loved ones every minute of every day and night—permanently. It's automatic, electric, foolproof—easy to install. Run low cost bell wire to detectors (usually in furnace room and storage area) . . . screw detectors onto ceiling . . . and mount 5" x 7" signal unit onto wall. Connect detectors and plug in. That's all. Two UL listed detectors give you 400 sq. ft. safe coverage each (for protection in *every* room, use additional detectors at $3.50 each). At 140°, detectors set off loud alarm that gives your family fair warning—*fire warning.* Guaranteed by Edwards, maker of fire alarm systems for you and your family in schools, hospitals, industrial and office buildings . . . since 1872. For freedom from fear of fire for *your* family, buy it today from your electrical or hardware dealer, or mail coupon for literature and name of nearest distributor.

So sensitive a lighted match sets off alarm.

EDWARDS

HOME FIRE ALARM...$19.95

EDWARDS CO., INC., Dept. PS-5, Norwalk, Conn.
(In Canada: Address Owen Sound, Ontario)

Please send literature and name of nearest distributor.

Name_____

Address_____

City_____ State_____

Copyrighted material

U-MAK-IT BOAT KITS

for that **FACTORY-BUILT** *Look!*

BUILD YOUR OWN & SAVE HALF THE COST

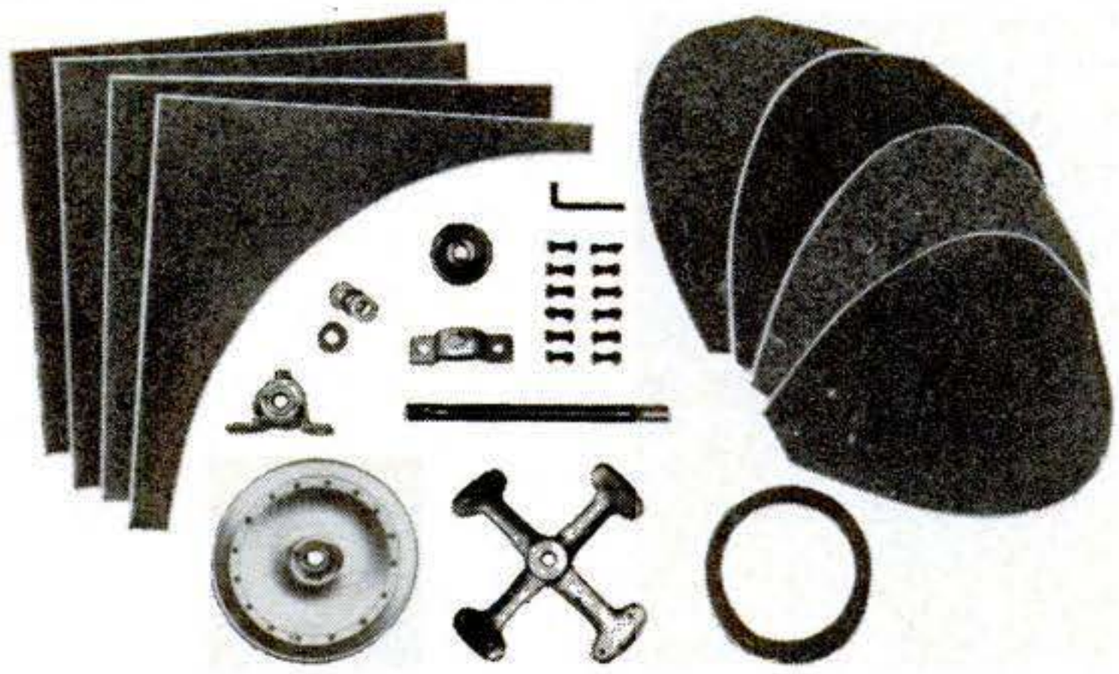
30 MODELS FROM 8' PRAMS TO 23' CABIN CRUISERS

Factory built boats and boat kits are only as good as the materials that go into them, and how accurately the parts fit together. The parts of U-Mak-It Boat Kits are machined to extremely close tolerances from the best materials obtainable—that's why they are known the world over as the finest. With "tricky" parts like ribs pre-assembled, and bottom and sides etc. cut to shape, assembling a U-Mak-It Boat Kit is made simple for even the most inexperienced. 27 years of boat kit manufacturing experience is your bonus packed into every kit.

GET YOUR NEW U-MAK-IT CATALOG showing the complete line for '55, incl. everything to build your own. Outboard motors, marine engines, motor installation kits, hardware, trailers, etc. SEND 25c COIN

U-MAK-IT *products*

703R WHITTIER ST. • BRONX 59 N.Y. CITY



HUGE SAVINGS! ASSEMBLE YOUR OWN FANS!

30" Window Fan $15

We supply all precision parts shown (includes baffle cut in 4 sections for easy packaging), along with easy-to-follow instructions. Anyone including women can assemble these fans. You save up to 75%. A great idea especially if you need several fans. Also you can assemble fans in your spare time and earn extra income selling them.

S. J. STEWART [ELECTRIC], in business for over 56 years, guarantees every precision part to be of fine quality, giving you a fan of long, silent, trouble-free operation.

Sold with money-back guarantee. Free circular.

30" BLADE SIZE (24" $14.25) delivered—Transportation prepaid if cash accompanies order. **$15**

S. J. STEWART [ELECTRIC]
529 St. Joseph Street New Orleans, La.

get into the URANIUM BOOM!

They're discovering URANIUM everywhere—and thousands of people just like YOU are making fortunes finding it! Get your share of big Govt. payoffs—to find URANIUM all you need is a good uranium detector. Radiac Co., the largest supplier of Strategic Metal & Mineral Detectors in the U.S. features a complete line of URANIUM prospecting equipment from $35 to $3500! Radiac instruments are GUARANTEED to indicate presence of any uranium within detection range!

only $35 f.o.b. N.Y.

NOW A LOW-PRICED GENUINE GEIGER COUNTER!

Write today for FREE descriptive brochures. We supply the U.S. Atomic Energy Commission, and now you can buy your prospecting equipment from the same source.

The RADIAC CO., Inc. Dept. P-5
489 Fifth Ave., New York 17, N. Y.

TELEPHONES

Desk Stand Style

Slightly used but in excellent condition

Many Valuable Uses

Inter-House Phones — House to Barn, etc.
Loud Speakers — Microphones
Educational Purposes, Toys, etc.

Come complete, ready to use with wiring diagrams included. Two complete for only $5.00 **$2.75** Postpaid in U.S.A.

TELEPHONE LAMP KIT—with illustrated instructions for making Desk Telephone Lamp including all parts (harp, nipples, push switch, cord, plug, etc.) . . . . $6.50 Ppd. (Shade is not included).

MICROPHONE, Dept. X-2204, 1760 W. Lunt Ave., Chicago 26, Ill.

MEN PAST 40

Men afflicted with Bladder Trouble, Getting Up Nights, Pains in Back, Hips, Legs, Nervousness, Dizziness, Physical Inability and General Impotency send for our amazing **FREE BOOK** that tells how you may correct these conditions and have new health and Zest in Life. Write today. No Obligation.

Excelsior Institute, Dept. B-5, Excelsior Springs, Mo.

BUILD YOUR OWN

AIR CONDITIONERS

From Junked Refrigerators for a Few Dollars

INSTRUCTION BOOKS SHOW YOU HOW. 75c EACH
"HOW TO BUILD a Low Cost Air Conditioner"
"HOW TO BUILD an Automobile Air Conditioner"
"HOW TO BUILD a Low Cost Home Freezer"
"HOW TO BUILD an Electrostatic Precipitator"
"HOW TO BUILD a Low Cost Dehumidifier"

Complete "Install-It-Yourself" Air Conditioner kits for home and automobile, 2 Ton capacity, Brand New Parts—**$179.70 and up.**

Special Offer 2 or 3 books 50c each or all 5 for $2.00

FREE! Instructions and Literature on kits.

KOOL ENGINEERING CO., Dept. A-6, 3716 Belmont, Chicago 18, Ill.

SAVE MONEY ON US GOV'T SURPLUS

Save Money, Buy Surplus Direct from U.S. Government. Items that you normally could not afford. The following may be purchased at tremendous Savings. Truck, tractor, trailer, jeep, car, boat, motor, parts, tools, lathes, saws, drills, welding equipment, Office equipment, typewriters, mimeos, calculators, radio, photographic equipment, printing press, doctor, dentist equipment. Hunting, fishing camping sporting equipment, clothing. These & hundreds of other items are listed in our Publication "Surplus Sales." Price $1.00.

THE ABACUS PRESS, Box 169AAA East Htfd. 8, Conn.

"PERKINS" SMALL BOAT EQUIPMENT CATALOG

62 Pages full of Equipment for Small Boats, Outboards, Runabouts, etc.

SEND FOR YOUR COPY TODAY

Include 25¢ to cover cost of Mailing and Handling.

PERKINS MARINE
LAMP & HARDWARE CORP.
1946 PITKIN AVE., B'KLYN 7, N. Y.

Copyrighted material

MAGIC MAIL PLAN

that comes with this Little Machine
CAN MAKE YOU $5.00 AN HOUR

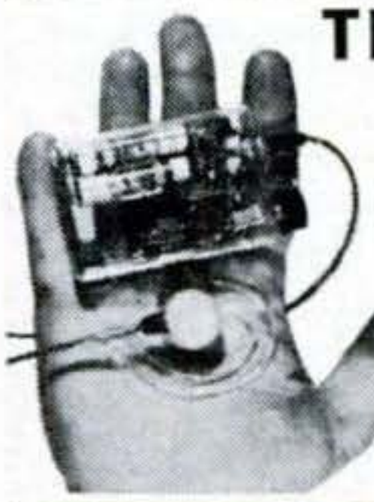
Write today for free facts about the newest and most fascinating of all new home operated businesses. For the first time, a simplified machine brings the fabulous profits of Plastic Sealing and Plastic Laminating within reach of the small operator. Anyone can learn to operate it with a few minutes practice. Then—with our MAGIC MAIL PLAN—can get mail orders pouring in daily with cash in every envelope.

No Canvassing or Selling

Fill orders at home in spare time to start. Then expand to full time business. We even supply circulars to bring back cash and orders. Rush name for all the facts you need to start. A postcard will do. No charge.

WARNER ELECTRIC CO., Dept. L-9-E
1512 Jarvis, Chicago 26, Illinois

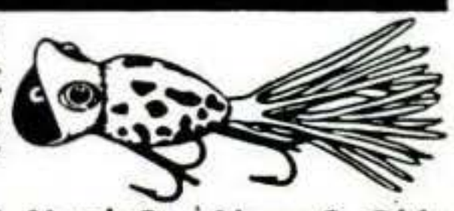
TRANSISTOR RADIO!!!



World's smallest and lowest priced transistor set. Perfect for Baseball Fans, Sportsmen, etc., office workers, children. Polystyrene plastic case smaller than cigarette pack, carry in shirt pocket or purse. Tunes all stations. Operates one month on dime store battery. Play indoors, outdoors, in automobile. Built-in antenna. Assemble in 20 minutes, no soldering iron needed. Complete with battery less earset—$12.00. Precision hearing aid earset shown—$4.00 or single small headphone—$2.00. Postpaid. Cash, Check or Money Order. **Eastern Audio Research,** Box 62, Little Neck 63, N. Y.

HULA POPPER • GETS BIG BASS

Surface popping lure. Ideal combination of noise, action, casting and hooking qualities. Pops, plunks, jerks, twitches — obeys your slightest wrist command. Rubber Hula Skirt imitates live bug. At your dealer 5/8 oz. or 1/4 oz., $1.25. Fly rod size, 75c.



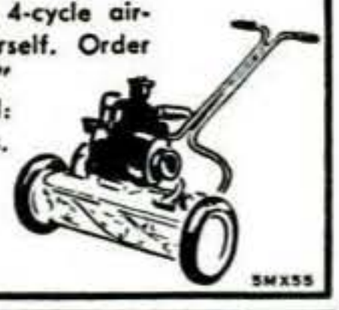
FRED ARBOGAST CO. INC., 2355 W. North St., Akron 3, Ohio

FREE WRITE TODAY FOR YOUR BIG FREE ARBOGAST COLOR CATALOG—FULL OF PICTURES OF CATCHES

MAXIM EXHAUST SILENCER

For POWER MOWERS — GARDEN TRACTORS

Eliminates exhaust racket on 4-cycle air-cooled engines. Install it yourself. Order 1/2", 3/4", 1" silencers for 13/16", 1-1/16", 1-5/16" exhaust ports (inside diam.) respectively. Prices postpaid: 1/2", $3.95; 3/4", $5.95; 1", $7.95. Sorry, no C.O.D.'s.



Ask your dealer or write direct
THE MAXIM SILENCER COMPANY
122 Homestead Avenue, Hartford 1, Connecticut

5MX55

Don't build a trailer, buy one, tow one, live in one, sell one until you've read the... Mobile Home Manual

Here for the first time is a comprehensive fact-filled book covering every phase of trailering: building, remodelling, maintaining, accessories, buying, camping, traveling, living, towing. 208 pages, 250 illustrations and diagrams . . . thousands of useful tips. It's the official how-to-do-it, how-to-buy-it, how-to-improve-it guide to better trailer living. Send for yours today. If it isn't worth many times its cost to you, send it back for a full refund.

Only $1.98 ppd.

Trail-R-Club of America,
Dept. BS-35
Box 1376, Beverly Hills, California

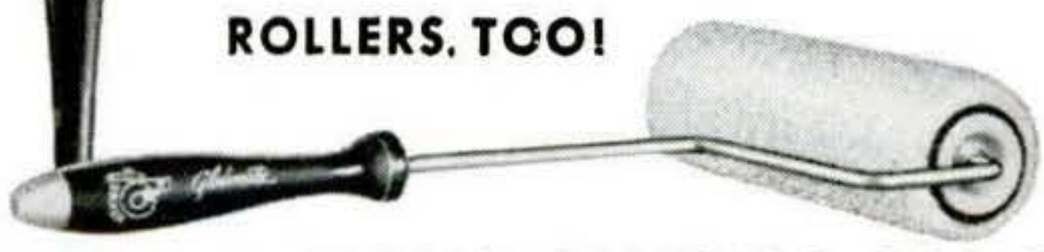
HERE'S HOW YOU CAN DO A *Better Paint Job!*

Use Baker Brushes and you'll paint faster, easier, *better!* Baker Brushes always pick up a full load of paint, so you dip less. Paint spreads more evenly, and with fewer strokes. To be sure of best results, ask for Brushes by Baker.

SEND FOR FREE BOOKLET "How to do a good paint job". Send card (and name of retailer, if you wish) to Baker Brush Co., Inc., 83 Grand St., N.Y.C. 13.

BRUSHES by BAKER

ROLLERS, TOO!



AMERICA'S FINEST PAINTING TOOLS

Copyrighted material

PREPO the torch that does it all!

• Here's the hottest, handiest, lightest hand torch ever... with six interchangeable burners and tips from which to choose. Instant flame! Instant heat! Uses low-cost Prepo Fuel in the convenient throw-away tank. Each tank lasts for hours of continuous full-flame use.

$6.45

Price includes torch as shown. Other burners and tips at slight additional cost. Prepo Fuel tanks 59c at your dealer.

PREPO CORPORATION
EDGERTON, WISCONSIN

EARN MORE

$ $ $ $ $

THIS 120 PAGE HANDBOOK

FREE!

120 pages of practical guidance to the best paid positions, for men who aren't content to stay "at the bottom". Home Study Courses in all branches of Engineering. How to get rapid promotion. You will find all this, and much more, in "ENGINEERING OPPORTUNITIES" — a book that can MAKE THIS YOUR BIG YEAR.

Civil	A.M.I.C.E.	Structural	Electronics
Mechanical	A.M.I.Mech.E.	Aeronautical	A.F.R.Ae.S.
Electrical	B.Science	A.M.Brit.I.R.E.	Building

MAIL COUPON TODAY

Canadian Institute of Science and Technology Limited
592 Century Building, 412, 5th St. N.W. Washington, D.C.
Please forward free of cost or obligation your handbook, "ENGINEERING OPPORTUNITIES".

Name.....

Address.....

.....Course

Interested in.....Age

Canadian Address: Canadian Institute of Science Garden Building, 263 Adelaide St. W., Toronto, Ont.

For Racing at its Thrilling Exciting Best . . .

Get in on Micro-Midget racing. America's newest, most exciting, and fastest growing sport. Speeds up to 30 M.P.H. on a 1/10 mile track. Can be purchased in kit form or complete ready-to-run. Send 25 cents for completely illustrated literature describing all details.

- 6 H.P. High Speed Engine
- 50 M.P.H. Top Speed
- Soundly Engineered
- Precision-Built
- Compact Sturdy Construction
- Moderately Priced

Dealers Inquiries Invited

JUNIOR MIDGET

COMET MANUFACTURING CO.
DEPT. 23, P.O. BOX 1882 SACRAMENTO 9, CALIFORNIA

NOW! *It's EASY To REMOVE* STUMPS *With "MAGIC" STUMP REMOVER*

All you do is pour "Magic" Stump Remover—a new, quick-acting chemical compound—into hole drilled in center of stump. Wood fibres soon decompose all way to root tips, making removal easy . . . even for women and youngsters!
SPECIAL TRIAL OFFER: 8-oz. Can (enough for one stump) —$1.50; 16-oz. — $2.50; 3 lbs. $5.00. Send no money! Pay postman, plus postage. (Or send full amount with order for postpaid delivery.)
Satisfaction Guaranteed or Money Refunded!

No Digging! No Chopping! No Blasting!

EASY TO USE! Saves Time, Money!

FREE! Generous sample of "GRO-GREEN" new liquid lawn fertilizer, with each Stump Remover order.

H. D. CAMPBELL CO. **Rochelle 5, Ill.**

CASTING FOR CASH

REPRODUCE ANY OBJECT QUICKLY, EASILY

Now you can easily make reproductions of any object, in any quantity, right at home, overnight. Make perfect copies of anything—wood, metal, clay, plastic, glass, with new RUBBER MOLD method. No tools, special skill needed. Have fun, make money. Send for complete kit No. 100S only $2.95. Brochure S13 gives complete, easy step-by-step instructions only 10c.

SCULPTURE HOUSE, 304 W. 42nd St., New York 36, N. Y.

SENSATIONAL, NEW
BENJAMIN SUPER CO_2 ROCKET GAS PISTOL *with 2 STAGE JET SHOOTING POWER* **$15.00**

HARD HITTING—ACCURATE—ECONOMICAL
SAFE—NON TOXIC—CONVENIENT—PRACTICAL.

Easy to operate. No pumping—No spring recoil. Uses popular standard size Soda Cartridges, Cal. .22 Benjamin H-C Pellets and Darts. For target and small game. **FREE FOLDER.**

Benjamin CO_2 Carbine Rifle $16.50

BENJAMIN AIR RIFLE CO., 852 BARRY ST., ST. LOUIS 4, MO., U. S. A.

BE DISTINCTIVE!

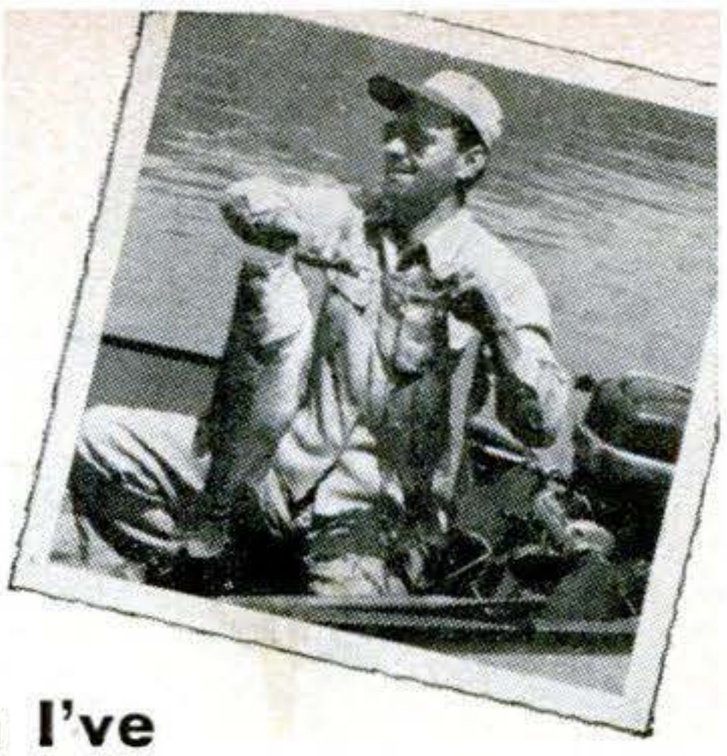
Now, for the first time you can personalize your car with your name in beautiful custom-made Signagram Script. Made of heavy brass, all in one piece, and finished in beautiful gleaming chrome. Easily bonded to car side with specal waterproof cement. No holes or drilling to mark your car. This new Signagram Script can be used anywhere—on your luggage, doors, desk set, brief case, hand bag etc. etc. Gives your car—and possessions a mark of distinction. Average name Signagram about 3½" long. Here is a new and wonderfully distinctive personalized gift.
To order print clearly copy to be used. Full name up to 13 letters. Price $3.50 each, set of 2 for $6.50. Initials only at $2.00. Send check or money order—we pay postage. Satisfaction guaranteed.

SIGNAGRAM P.O. BOX 507 ALLENTOWN, PA.

Copyrighted material

Bass Fishermen will Say I'm Crazy . . .

until they try my method!



But, after an honest trial, if you're at all like the other men to whom I've told my strange plan, you'll guard it with your last breath.

Don't jump at conclusions. I'm not a manufacturer of any fancy new lure. I have no rods or lines to sell. I'm a professional man and make a good living in my profession. But my all-absorbing hobby is fishing. And, quite by accident. I've discovered how to go to waters that everyone else says are fished out and come in with a limit catch of the biggest bass that you ever saw. The savage old bass that got so big, because they were "wise" to every ordinary way of fishing.

This METHOD is NOT spinning, trolling, casting, fly fishing, trot line fishing, set line fishing, hand line fishing, live bait fishing, jugging, netting, trapping, seining, and does not even faintly resemble any of these standard methods of fishing. No live bait or prepared bait is used. You can carry all of the equipment you need in one hand.

The whole method can be learned in twenty minutes —twenty minutes of fascinating reading. All the extra equipment you need, you can buy locally at a cost of less than a dollar. Yet with it, you can come in after an hour or two of the greatest excitement of your life, with a stringer full. Not one or two miserable 12 or 14 inch over-sized keepers — but five or six real beauties with real poundage behind them. The kind that don't need a word of explanation of the professional skill of the man who caught them. Absolutely legal, too—in every state.

This amazing method was developed by a little group of professional fishermen. Though they are public guides, they rarely divulge their method to their patrons. They use it only when fishing for their own tables. It is probable that no man on your waters has ever **seen it,** ever **heard of it,** or ever **used it.** And when you have given it the first trial, you will be as closed-mouthed as a man who has suddenly discovered a gold mine. Because with this method you can fish within a hundred feet of the best fishermen in the county and pull in ferocious big ones while they come home empty handed. No special skill is required. The method is just as deadly in the hands of a novice as in the hands of an old timer. My method will be disclosed only to a few men in each area—men who will give me their word of honor not to give the method to anyone else.

Send me your name. Let me tell you how you can try out this deadly method of bringing in big bass from your "fished out" waters. Let me tell you why I let you try out my unusual method without risking a penny of your money on instructions or lures. There is no charge for this information, now or at any other time. Just your name is all I need. But I guarantee that the information I send you will make you a complete skeptic—until once you try it! And then, your own catches will fill you with disbelief. Send your name, today. This will be fun.

ERIK S. FARE
317 S. Milwaukee Avenue, Libertyville 3, Illinois

Erik S. Fare, 317 S. Milwaukee Ave.
Libertyville 3, Illinois

Dear Mr. Fare: Send me complete information without any charge and without the slightest obligation. Tell me how I can learn your method of catching big bass from "fished out" waters, even when the old timers are reporting "No Luck."

Name.....

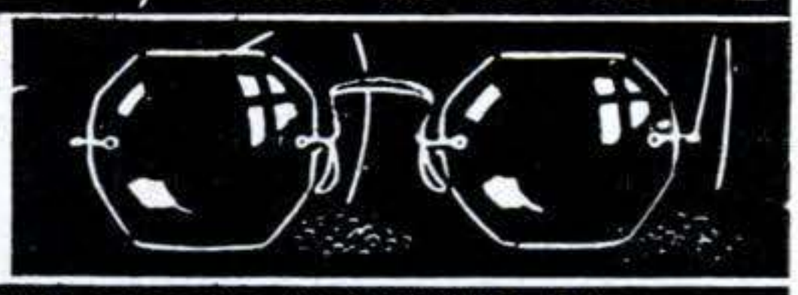
Address.....

City.....Zone....State.....

EYE GLASSES *by* MAIL As low as $1.95

WRITE for FREE CATALOG with 14 LENS SAMPLE CARD

Thousands of Customers
Est. 1939



QUALITY READING-MAGNIFYING OR BIFOCAL GLASSES FOR FAR AND NEAR

ADVANCE SPECTACLE COMPANY, Inc.
537 S. Dearborn St., Dept. SP-5 Chicago 5, Illinois

Works in seconds!

3 oz. CAN
30c

Loosens Rusted Bolts
nuts . . . screws . . . parts

LIQUID® WRENCH

AT HARDWARE STORES, GARAGES, FILLING STATIONS EVERYWHERE

For information write manufacturer

RADIATOR SPECIALTY CO.
Charlotte, N. C.

BUILDING or REPAIRING

KEEP HER TRIM AND WATERTIGHT

USE **KUHLS** *ELASTIC* SEAM COMPOSITIONS
GLUES – CEMENT – PRESERVATIVES

SINCE 1889

For BOATS • TRAILERS • HOMES

SEALTITE A RUBBER BASE LIQUID SEALER

OIL RESISTANT

For hard to get at open seams not wider than 1/32 of an inch. Expands and contracts for an absolute watertight seal.

16 GREAT (Elastic) MARINE PRODUCTS

Seam Composition No. 1 for DECKS
Seam Composition No. 2 for HULLS
Canvas Preservative • Seamlast • Firegard • Bedlast • Seam Paint • Canvas Cement • Patchlast • Linolast 3-Way Preservative • Trowelast Double Plank Cement • Brushlast Canvas Cement • "Avio" Aer-O-Nautic Liquid Marine Glue

SOLD AT ALL DEALERS

Send for FREE Booklet with Complete Boat Chart

H.B. FRED KUHLS 65th Street and 3rd Avenue Brooklyn 20, New York

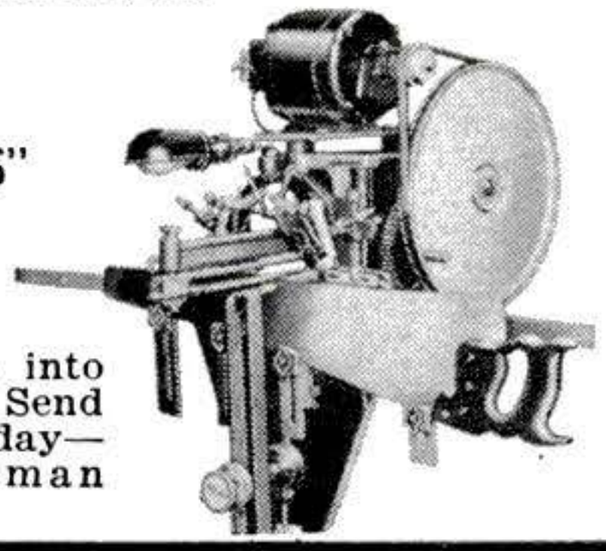
Copyrighted material

Made $900 IN SPARE TIME

"I did very well last year with my Foley equipment, filing about 950 saws in my spare time. About $900 for me." Leo H. Mix, New York.

MAKE UP TO $3 OR $5 AN HOUR IN SPARE TIME

With a Foley Automatic Saw Filer you can file hand, band and circular saws better than the most expert hand filer. Cash business—no canvassing. No eyestrain, no experience needed.



FREE BOOK—

"MONEY MAKING FACTS"

shows just how you can start at home in spare time, with small investment, no overhead—and develop into a full-time repair shop. Send coupon today—no salesman will call.

Send Coupon for FREE BOOK

FOLEY MFG. CO.
519-5 Foley Bldg., Minneapolis 18, Minn.
Send FREE BOOK—"Money Making Facts."

Name . . . . . .

Address . . . . . .

LAW FREE BOOK

THE LAW TRAINED MAN

Write today for a FREE copy of illustrated law book, **"THE LAW-TRAINED MAN,"** which shows how to earn the professional Bachelor of Laws (LL.B.) degree through home study of the famous Blackstone Law Course. All necessary books and lessons provided. Moderate cost; convenient monthly terms. Write for FREE law training book today.

Blackstone School of Law, 225 N. Michigan Ave.
Founded 1890 **Dept. 125, Chicago 1, Ill.**

Install Without Boats—No Standing in Water

Written up in LIFE. Fast pivot assembly swings sections into position *from the shore or dock,* easily taken-out each winter. Readily portable. Complete with rust-proofed Tubular Steel Frame, Wood Decking, and Jack, for all sizes and plans.

At Your Dealers—Write for Bulletin S-5 *Dealer Inquiries invited*

L.B. FOSTER CO. 231 S. LaSALLE ST. CHICAGO 4, ILL.

GROW HERBS & SPICES AT HOME

MEN! WOMEN! Earn Spare Time $$

Successful home grower tells you how he started growing Herbs as hobby **IN SMALL APARTMENT** and developed a fine, nation-wide business. Learn how to make 101 profitable items at home. **BIG-PROFIT** orders come from neighbors, stores, gift shops, many business firms—**ALSO MAIL ORDERS.** Millions of $$ worth used yearly in foods, drinks, cosmetics, perfumes, medicines, etc. **EASY TO GROW** indoors or out. Few plants in kitchen window supply household needs. **HERBS MULTIPLY RAPIDLY**—half-dozen plants soon become hundreds. No big overhead. **SEND NO MONEY.** Instructions including **PLANS FOR 25 WAYS TO MAKE MONEY AT HOME** with Herbs **AND LIVING HERB PLANTS** sent for no-risk examination. **FREE**—full details.

WRITE NOW! WORLD OF HERBS, Dept. 55, 601 S. Vermont, Los Angeles 5, Calif.

BARGAINS

LISTS EVERY MONTH HUNDREDS OF TERRIFIC BUYS IN—

● BANKRUPT, Closeout, Surplus Goods ● New & UNUSUAL items. ● WHOLESALE ITEMS ● BELOW WHOLESALE ● Sources of 100,000 items wholesale. ● Rare Money-Makers opportunities.

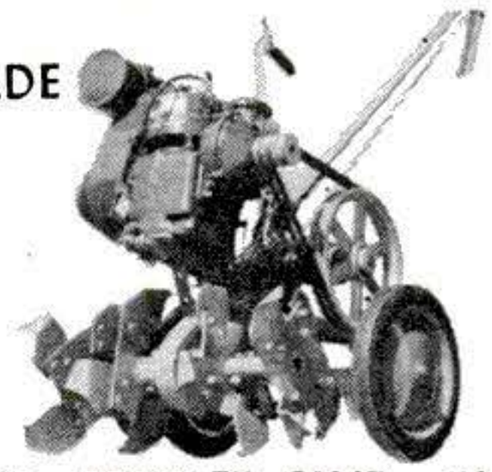
HUNDREDS of TERRIFIC offers in Toys, Books, Household goods, Jewelry, Greeting cards, etc.! . . . SAMPLE BARGAINS— ● Famous $16.00 Perfume at 60c. ● 50c boxes Everyday, Xmas cards, 7c box. ● $1.00 toys, 20c ● $1.95 silk ties, 12½c ● Pencils, 99c gross ● $17.50 talking dolls at $7.50! PLUS MANY, MANY OTHERS!!

BIG SPECIAL ISSUE NOW OUT! Subscribe NOW! BARGAINS let you BUY BETTER, CHEAPER, NEWER things for yourself or for resale at TREMENDOUS PROFITS.

$1.00 Buys 6 Big issues—1 Yr. $2.00. Reg. Price $3.00 year. Spec. Limited time offer to get 10,000 new subscribers. **The only magazine of its kind published!**

TOWER PRESS INC., P. O. Box 591-DL, Lynn, Mass.

RUGGED MOTOSPADE



- ✦ Cultivates 2-5 Acres Easily
- ✦ Guaranteed to Till Hard Soil
- ✦ 20 Practical Attachments
- ✦ Outperforms Similar Tillers
- ✦ Profitable . . . Versatile

Smithburger **WRITE: UNIVATOR**

UNIVATOR, INC., 2030-44 CENTER ST., BERKELEY, CALIFORNIA

It's Easy to Take Better Photos!

First **Popular Science** camera book in 10 years! 256-page **Everybody's Photography Manual**; over 750 pictures. Vital how-to facts on cameras, films, developing, dark-room, home-movies, accessories, **more!** Only $2.49. **Supply limited!**

POPULAR SCIENCE MONTHLY

Dept. 555, 353-4th Ave. New York 10, N. Y.

MACHINED PARTS READY TO ASSEMBLE

Do It Yourself **MODEL 120 FANKIT** Do It Yourself

- For home—farm—shop!
- 20" assembled and balanced aluminum fan blade with steel hub
- 4840 cubic ft. of air per minute
- Rubber mounted bearings
- Complete V belt drive
- Steel fan shaft & collars
- All hardware to assemble
- All you need is any ¼ to ½ hp

1725 RPM Motor a Screw Driver and 20 minutes time to assemble this wonderful home or shop fan kit. Quality at low cost!

● 28x24x11½ window kit box
Just saw & nail—fits most windows **$595**
(Instruction sheet included) F.O.B. Plant

FAN KIT ONLY **$16.95**

Parcel Post Prepaid

Send Check or M.O. DEALER INQUIRIES INVITED

A. E. BOGG MACHINE & TOOL COMPANY
811 Jefferson St. Jefferson City, Mo. Dept. PS-5

Copyrighted material

Can't Get Rid of

PILES' PAIN?

Then You'd Better Send For This FREE BOOK!

Ointments fail you? Other "home" remedies can't give real relief? You've "tried 'em all" and piles, or fistula, or other rectal pain still tortures you? Then you **do** need this book from America's leading pile and general rectal clinic. Tells you what to do—and why.

Write for Your Free Copy of

"RECTAL AND COLON DISEASES"

Thornton Minor Hospital, Suite 549
911 E. Linwood Kansas City 9, Mo.

Blast off with DUAL vacuum AIR HORNS!

ONLY $9.95 • POSTPAID
Money-back Guarantee

Compares with $25 to $100 Air Horns

The voice of authority and commanding warning for safer highway driving. One BLAST and those "Road Hogs" really move over. Installed under the hood or on the front fender. Beautiful lacquer finish. Operates from intake manifold No tank needed. Only $9.95 complete with cylinder head bracket, steering column lever, hose, fittings, etc. Send check or money order today. We pay postage. $1.00 deposit required on all C.O.D. orders.
THE PROTECTUROD CO.
Dept. 704, 716 N. E. 17th Rd., Fort Lauderdale, Florida

SHELVES *for any type wall!*
BRODY SHELF-KIT
NEEDS NO NAILS! NO FLOOR SPACE!

Save 67% on installation costs! Use on walls of wood, plaster, cement, cinder, brick, etc. Do a professional job—quickly, easily. Just mount Uprights. Insert Brackets. Add wood, glass, metal—any material. **Presto**—you've got good-looking shelves. 18" long to room length units; 4" to 18" deep. One shelf or complete wall. Usable anywhere. Guaranteed durable—brackets hold 60 to 100 lbs. (depending on size). Complete with stud-finder. **Write NOW for FREE Booklet.**
ROBERT BRODY, 5-G Coenties Slip, New York 4, N. Y.

TERMITES IN YOUR HOUSE? GET RID OF THEM YOURSELF!

DON'T PAY $300.00 AND UP TO ERADICATE TERMITES FROM YOUR HOME OR PREVENT INFESTATION. DO IT YOURSELF IN ONE AFTERNOON. EASILY! QUICKLY! INEXPENSIVELY WITH *"TERM-OUT"*! SEND STAMP FOR HANDBOOK.

COMPASS RESEARCH
4135 B BROWNSVILLE RD., PITTSBURGH 27, PA.

FREE! INFORMATION YOU SHOULD KNOW NOW ABOUT

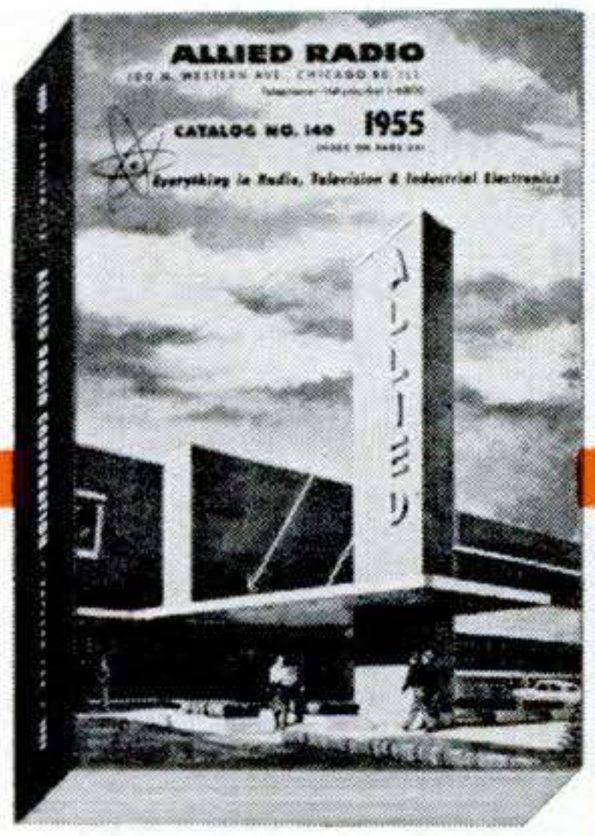
URANIUM PROSPECTING

Uranium is making fortunes overnight. The Government pays up to $35,000 bonus for uranium finds. But, there is information you should know about uranium prospecting. Get it FREE in a valuable booklet by Dr. Benjamin Schloss, well known scientist who worked on the original wartime atomic bomb project. "How To Make Money Prospecting for Uranium", how to find; how to sell; legal aspects; etc. We'll send this booklet, along with a Geiger Comparator Chart: "How to Select a Geiger Counter" FREE—*write today.* NUCLEONIC CO. OF AMERICA, 196 DeGraw St., Brooklyn 31, N. Y. Dept. PS-55

FREE 1955 ALLIED

TV & RADIO CATALOG

THE COMPLETE ELECTRONIC SUPPLY GUIDE

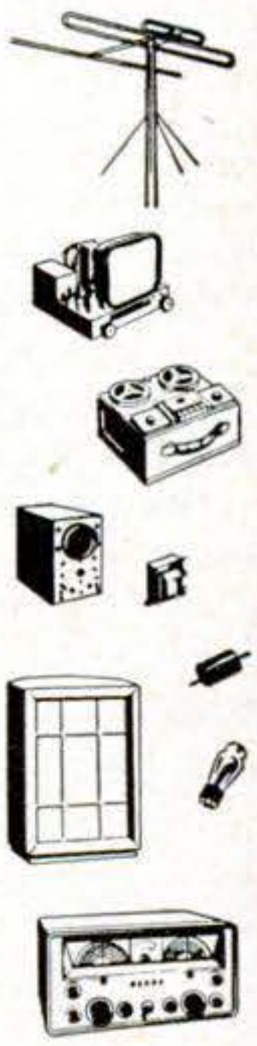


308 VALUE-PACKED PAGES

Save on Everything in Electronics

WORLD'S LARGEST STOCKS

Everything for Experimenters, Builders, Amateurs, Servicemen, Engineers and Hi-Fi Specialists



Send for ALLIED's big 308-page value-packed buying guide to *everything* in TV, Radio and Electronics! Largest selections of custom TV chassis, antennas and accessories; FM and AM tuners; High Fidelity systems and components; recorders and phono equipment; Amateur supplies; test instruments; builders' kits; industrial electronic supplies —*plus* the world's largest stocks of electronic parts, tubes, tools and books. Save on everything in Electronics —send today for your FREE 1955 ALLIED Catalog.

ultra-modern facilities to SERVE YOU BEST

Send for FREE Catalog

ALLIED RADIO

ALLIED RADIO CORP., Dept. 7-E-5
100 N. Western Ave., Chicago 80, Ill.

☐ Rush FREE 1955 ALLIED 308-Page Catalog

*Name*_____

*Address*_____

*City*_____ *Zone*____ *State*_____

Copyrighted material

Just off the press — the Inside Story on

URANIUM

How to Find it • How to Cash In on it

Weekend prospectors have already found uranium — hundreds of millions of dollars worth — in 45 states. Here's how to get started for $2

NO TIME TO WASTE

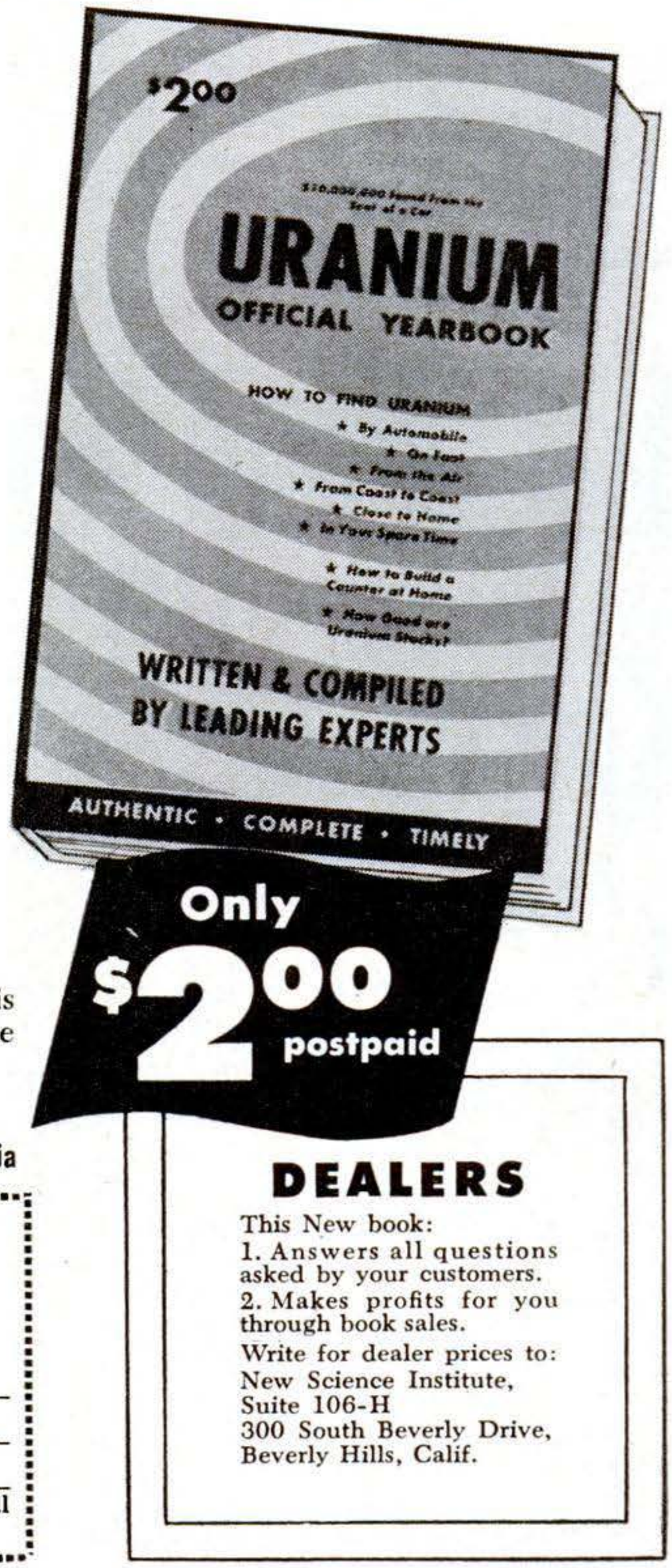
The uranium rush is on! The Government is paying $35,000 bonuses to amateur prospectors! Experts say that no matter where you live, there's an excellent chance of finding uranium within 100 miles of your home.

HOW TO BUILD AND USE A GEIGER COUNTER

Compiled by pioneer uranium authorities, this authoritative book gives reliable information on:

- **Where and how to find uranium.**
- **How to prospect by foot, car, and air.**
- **How to build your own Geiger or scintillation counter.**
- **How to judge the quality of counters, and how to use them correctly.**
- **The right way to make a field assays; how, where, to get free chemical assays.**
- **Latest Government cash bonus rulings.**
- **Uranium "hot spots" throughout the U. S. Loaded with photos, diagrams, maps.**
- **Uranium stock investments: staying out of trouble.**
- **Many other vitally important chapters.**

This book has all the important facts ever published on uranium prospecting, written so you can understand it. To get your copy, send the coupon below and just $2.00 today.



MONEY BACK GUARANTEE

If you don't agree that the Official Uranium Yearbook is worth many times its cost to you, your money will be refunded with no questions asked.

NEW SCIENCE INSTITUTE

300 South Beverly Drive, Suite 106-H, Beverly Hills, California

New Science Institute
300 So. Beverly Dr., Suite 106-H, Beverly Hills, Calif.

Please rush by return mail_____copies of the Official Uranium Yearbook at $2.00 per copy.

Enclosed is $_____in full payment (cash, check, or M.O.)

Name_____

Address_____

City_____Zone____State_____

I understand that I may return book(s) within 15 days for full refund if not satisfied.

DEALERS

This New book:
1. Answers all questions asked by your customers.
2. Makes profits for you through book sales.

Write for dealer prices to:
New Science Institute,
Suite 106-H
300 South Beverly Drive,
Beverly Hills, Calif.

Copyrighted material

TUBE FREE WITH EVERY TIRE AT NO EXTRA COST

EXPERIENCE IS THE BEST TEACHER. OUR MANY YEARS PROVES YOU CAN'T GET MORE. WHY PAY MORE? LOW OVERHEAD — LARGE VOLUME SALES & SMALL PROFITS BRING YOU THESE "LOWEST PRICES." WHAT GOOD IS A TIRE WITHOUT A TUBE? 21 YEARS AT THIS ADDRESS. FREE TUBES.

32 MOS. WRITTEN GUARANTEE

600-16	$4.55	820-15	$5.45	600-20	$7.75	32x6 (8)	$11.75
650-16	4.85	700-15	4.65	650-20	8.85	32x6 (10)	12.65
700-16	5.35	670-15	4.45	700-20	9.45	900-20	15.65
650-15	4.55	710-15	4.45	750-20	10.55	1000-20	15.85
760-15	4.75	800-15	5.25	825-20	16.75	1100-20	17.65

FINEST USED TIRES*****NOT RECAPS

FREE If you buy 2 or 3 PASSENGER 4-ply tires, We GIVE ONE tireFREEonrequest. DoesNotincludeW.W.ortrucktires **FREE**

Specialists in Truck Tires—Selected for Toughest Jobs—Tops in Value

36 MOS. WRITTEN GUARANTEE WITH EVERY TIRE

600-16	$5.55	475-19	$4.85	700-15 (6)	$8.55	700-20	$10.95
600-16 (6)	5.55	640-15	5.15	750-16 (8)	8.75	750-20 (10)	15.75
650-16	5.75	670-15	5.55	700-17	8.85	825-20	18.95
650-16 (6)	6.65	710-15	5.55	750-17	10.32	900-20	17.95
700-16	6.05	760-15	5.85	825-15	12.95	1000-20	17.95
750-16 (6)	7.55	800-15	5.95	600-20	9.05	1100-20	19.95
550-18	4.55	820-15	5.95	650-20	10.95	1100-22	18.95
550-17	4.75	670-16	5.35	32x6 (8)	12.05	1000-22	20.05
650-15	5.55	760-16	7.05	32x6 (10)	13.95	750-20 (8)	11.95
700-15	5.95	700-16 (6)	7.35	750-15	10.95	1100-24	23.05
WHITE WALLS $1.00 EXTRA (Military Treads)						750x20	13.95

Thousands of tires shipped all over the U.S.A. All tires shipped F.O.B. Phila. Send Check or M.O. with this ad—Dept. 5—No C.O.D.

STANDARD 834 N. Broad St., Philadelphia 30, Pa.

YOU CAN GET IT... **WHOLESALE!**

SAVE UP TO 60% ON THOUSANDS OF FAMOUS PRODUCTS. OPPORTUNITY TO START YOUR OWN HIGHLY PROFITABLE MAIL ORDER BUSINESS. WORK AT HOME, SPARE-TIME. NO MERCHANDISE TO BUY OR HANDLE. NO EXPERIENCE OR CAPITAL REQUIRED, EVERYTHING SUPPLIED. SEND POST-CARD TODAY FOR YOUR COPY OF

BUY DIRECT SAVE up to 60%

FREE "WHOLESALE TRADE SECRETS"

DERROM COMPANY

21-06 WHITE, PATERSON 23, NEW JERSEY

PROFITS UNLIMITED

With a custom do it yourself Clock Kit

The sale of ULTRA MODERN CLOCKS

is booming. Custom designs sell for $50 to $150 to interior decorators, architects, etc. You can now build a fabulous collection of intriguing clocks for yourself and profit . . . and you can get the complete kit of all parts for a few dollars.

Write for FREE Catalog and Details

R. & H. PRODUCTS, Dept. S, 1343 S. 48 Ct., Cicero 50, Ill.

METAL WORKERS **4 TOOLS IN 1**

"4 in 1" **Punches, Forms, Shears, Rivets** metals up to 16 ga. 1" width, 5 sizes round punches included. Model #10—$9.95, postpaid. Hex, square, rectangular punches—40c each. **Brakes**—up to 90° Bends—16 ga. 12" and 18" widths. Unique feature permits forming of Boxes, Trays, Covers with up to 1" flange edge. 12" Model B12—$9.95. 18" Model B18—$14.95, F.O.B. Buffalo. **Notching & Nibbling Units**—Model N2 "V" Notch 1" x 1" and Model N2N 1" x 3/4"—$9.95 each., F.O.B., Buffalo. **Threading Die**—Thread rod stock for 1/8", 5/32" and 3/16" standard nuts $1.00 postpaid. **Wholesale Catalog**—82 pages of name brand items at dealer prices—50c.

ALBERT J. TATU, INC., 85 Columbia Dr.
Dept. PS-5, Williamsville 21, N. Y.

FREE OIL FILTER REPLACEMENTS

Buy the ZENICK Permanent Porous Bronze Filter Element for only $3.95! Then, no more filter elements to buy! Guaranteed 10 years or life of car Fits all cars and light trucks. State make of car when ordering. Only $3.95 p.p. Money Back Guarantee. Dealer Inquiries Invited.

ZENICK PRODUCTS CORP. Dept. 10
Box 2461, Los Angeles 54, California

America's Newest Sport Thrill

Kit form or assembled.

THE WATERBUG

Write for folder. Dealer inquiries invited.

WATERBUG COMPANY BAYPORT 1, MINNESOTA

Ventshades®

KEEP RAIN AND SUN OUT— LET FRESH AIR IN—

Add to the beauty of your car

Four-piece sets for 2 and 4 dr. Sedans $8.75
Two-piece (full-length) Hardtop sets $15.00

No more closed windows when it rains. No more stifling in stuffy air. With smart, new Ventshades on your car, you can leave the windows open a little, even in a cloudburst. Fresh air comes in—rain stays out. And fogging of the windshield is practically eliminated. When the sun is bright, Ventshades shield your eyes from harsh overhead glare, create a softer light inside the car.

Ventshades give your car an extra touch of streamlined beauty, too. Custom-built for each make and model of car, they blend with the body lines—look like a built-in feature—add smartness without being conspicuous. Made of heavy-gauge, highly-polished stainless steel. Can't rust or rattle. Easy to install—just drill holes and insert screws furnished. Available for cars of almost every make and model back to 1940. Get your Ventshades now and enjoy a lot of extra driving pleasure.

SEE YOUR DEALER. If he can't supply, order direct on coupon below. Satisfaction guaranteed.

AUTO VENTSHADE CO., Dept 5, Chamblee, Ga.
In Atlanta's Finest Industrial Suburb

Auto Ventshade Company, Chamblee, Georgia:
Please send me a set of Ventshades to fit this car:

Yr. _____ Make _____ Model or Series _____ Body Style _____

(Check one)

SEDAN $8.75
☐ I enclose full price of $8.75. You pay postage.
☐ I enclose $2. Ship COD for balance, plus postage.

HARDTOP $15.00
☐ I enclose full price of $15.00. You pay express.
☐ I enclose $5. Ship COD for balance, plus express.

Name _____

Address _____

City _____ State _____

4

Copyrighted material

Skymaster Palm-size Radio

Personal radio . . . receives up to 1500 miles

• CIVIL DEFENSE DIRECTOR says "Every home should have a battery-operated radio. Buy this powerful AMERICAN-MADE ELECTRON TUBE RADIO. Covers 540 to 1600 KC. Ideal for office, home, hospitals, etc. Use without disturbing others. Thousands in worldwide use. Capt. J. B. Panther, Ft. Whipple, Ariz.; hears Mexico City. Ken Ullman, Scarsdale, N. Y., hears Charleston, S. C. Vic Abell, Lincoln, Ill., hears Boston. C. Murphy, College Park, Ga., hears Dallas. Hearing aid batteries fit adapter in case, replaceable without soldering. FULLY GUARANTEED. (No outmoded war surplus parts used.) SETS FACTORY WIRED TUBE INCLUDED at $8.95. Batteries $1.15 per set. Reg. $2.50 Alnico Magnet radio earphone only $1.45, or $10.00 hearing aid earset at $4.95. Guaranteed value or money refunded. You can use own earphone.

$8.95 Postpaid incl. fed. tax

SAVE $3 — ASSEMBLE YOURSELF, $5.95

Complete kit of parts with tube and simple directions as used in Calif. schools only $5.95. $1.00 deposit required on C.O.D. Precision Electronics, Placerville 1, Calif.

OWN a Business

If employed, start part time. Alert dealers can gross $5 hourly profit on own service plus $3 on EACH serviceman. Clean, revive, mothproof rugs & upholstery on location. No shop needed. Services nationally advertised. Repeat customers. Easy to learn. We locally train and assist you. Quickly established. Easy terms. Send today for FREE booklet. No obligation.

DURACLEAN CO., 5-185 Duraclean Bldg., Deerfield, Ill.

JEEP OWNERS

STA. WAGONS • JEEPSTERS • PICK-UPS !

Take full advantage of 4-wheel drive by installing a Ford V-8 engine —MORE POWER—means less shifting, better traction at lower speeds, greater safety, plenty of power in high. All this is now possible by using our F-J adapter plate (Pat. Pending) Conversion Kit $43.25 Incl. FED. TAX. Write for free details or send check or M.O. for prepaid delivery. Order now for early shipment.

HOOSIER MACHINE PRODUCTS CO.
314 S.E. 6th St. Pendleton, Oregon

BUILD HELICOPTER GLIDER

The famous new GYRO-GLIDER, world's simplest and safest aircraft, is now available to amateur builders in plans and kits. Send $1.00 now for three-view drawings with specifications and ask about kits and detailed building and flying instructions.

ONLY $1

BENSEN AIRCRAFT CORP., Dept. PS-5
P. O. Box 2621, Raleigh, N. C.

Name.....Address.....
City.....State.....

GREATEST THRILL IN FLYING!

Catalog OF 3000 Novelties 10c

Send 10c for amazing catalog of novelties, live animals, scientific supplies, hobbies, funmakers, planes & boats, looms, magic tricks, joke articles, unusual seeds, gadget timesavers, cameras, optical goods, projectors, movies, lucky jewelry, religious novelties, disguises, musical instruments, stamps, coins, puzzles, fortune tellers, radios, auto & bike accessories, telescopes, magnifiers, compasses, banks, smokers' gadgets, artists' supplies, printing sets, engines, motors, shockers, knives, billfolds, fireworks, guns, rifles, sports, books, games, plants, etc. Send name, address & 10c to:

JOHNSON SMITH & CO., Dept. 948, Detroit 7, Michigan

When Writing to Advertiser Please Mention Popular Science

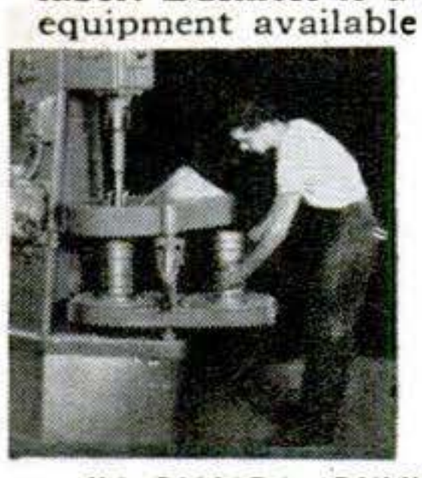
T3

Make Money Manufacturing Concrete Drain Tile

Manufacturers of concrete drain tile are in the driver's seat. Why? Because their basic costs are not burdened by freight, distribution and breakage costs—items which the clay tile people have to pass along. Net results: concrete tile can sell for less, yet show a generous profit.

The market is big—and getting bigger. Not only because of increased farm drainage, but also because drain tile are needed in home building, reclamation projects, highway construction, and many other purposes.

Tile made on the Champion are outstanding in quality —dense, strong, uniform and truly round. All sizes up to 12" diameter. Easy to make, because the Champion Machine is simple, compact, and requires no skilled labor. Business is a low-investment opportunity, with equipment available on terms. Write for catalog.



W. E. DUNN MFG. CO.
521 W. 24th Street, Holland, Mich.

IN CANADA: DUNN MASONRY MACHINERY LIMITED
972 Dundas Highway, Cooksville, Ont.

A Savings System That Really Works!

The Payroll Savings Plan

for investing in

UNITED STATES SAVINGS BONDS.

NOW SAVE BIG MONEY on FURNITURE

With the aid of this amazing, 256-page book, "*How to Build and Repair Your Own Furniture,*" you'll be able to make handsome new furniture and repair your present furniture *for the mere cost of materials!* Tables, chairs, bookcases, desks, cabinets, shelves, lamps, much more! No guesswork. Step-by-step directions show you how to turn out professional-looking furniture *on your first job!* Only $2.49! Write:

POPULAR SCIENCE, Dept. 555
353 Fourth Avenue New York 10, N. Y.

Copyrighted material

World's Greatest Battery Improvement in 40 Yrs.

Guaranteed for the Life of Your Car

No Time Limit

AS LONG AS YOU OWN IT

INSTANTANEOUS RECUPERATIVE POWER
GREATER SELF RECHARGING ABILITY !

PROVEN IN OVER ONE MILLION TESTS BY THIS SIMPLE METHOD . .

Press starter button until battery is completely run down. Wait **NOT OVER ONE MINUTE.** Press starter button. **PRESTO,** the **Electomic** Battery will respond with an unbelievable instantaneous surge of power. This amazing test may be repeated over and over again as the **Electomic** Battery with the **"METALOY"** grids will recuperate in less than **ONE MINUTE.**

This amazing test is possible because **Electomic** Batteries use **"METALOY"** grids (the greatest improvement in 40 years) manufactured by an exclusive process and pasted with super activated oxides by automatic machines to produce **Electomic** plates which outperform other batteries in laboratory and field tests as shown below.

COLD RATE TEST: Electomic Batteries have TREMENDOUS RESERVE POWER even at 70° below zero.
NORMAL TEMPERATURE TEST: Electomic Batteries DELIVER AS MUCH AS 25% greater engine spinning power.
HIGH TEMPERATURE TEST: Electomic Batteries outperform all other batteries in excessive tropical heat.
OVERCHARGE TEST: Electomic Batteries exceed specifications required by as much as 500%.

Thousands of **Electomic "METALOY"** grid batteries are in use all over the world in all types of service by large and small companies, by all departments of town, city, state and U.S. government services.

•FACTORY FRESH TO YOU from this New Modern Plant

"METALOY" grid alloy is a higher cost alloy used in the new **"METALOY"** grid, scientifically compounded (under a patented process) by using **balanced amounts** of **Silver and Nickel plus Tellurium** with Lead and Antimony.

"METALOY" makes the **Electomic** Battery LIFETIME GUARANTEE possible by resisting grid corrosion caused from overcharging—the No. 1 battery killer of today.

ELECTOMIC
"METALOY" Grid Batteries

DISTRIBUTOR TERRITORY OPEN Some Still Available—Act Now!

ELECTOMIC LIFETIME BATTERIES, DEPT. PS 55
601 - 85th Ave., Oakland 21, California
Please Ship (Cash, Check, Money Order Enclosed) No Stamps
☐ **6 volt Pass. Car Electomic Lifetime Batteries @ $30.95 (inc. tax)**
☐ **12 volt Pass. Car Electomic Lifetime Batteries @ $35.95 (inc. tax)** Delivered

FOR .....
Make and Model, Year of Car
NAME .....
ADDRESS .....
CITY ..... **ZONE** ..... **STATE** .....

PROFESSIONAL-TYPE ELECTRIC
HAIR CLIPPER

ONLY $10.95

At Your Barber, Beauty Shop or Dealer's

Cadet®

ELECTRIC HAIR CLIPPER

Saves time and money for the whole family! Has cool-running magnetic motor; fine-tooth blade for close cutting; streamlined plastic case. 110v 60 cycle AC; fully tested by UL. If your barber, beauty shop or dealer cannot supply you, order direct on 10-day money-back guarantee.

ELECTRO TOOL CORPORATION
DEPT. C535-E • RACINE, WISCONSIN

GROW Living MIDGET TREES!

EARN BIG MONEY

- AT HOME
- IN SPARE TIME
- NO EXPERIENCE NEEDED

It's new! Amazing! At last, the secret of growing miniature (MING) trees can be yours. FULL GROWN, dwarf trees — only a few inches high. Beautiful miniature fir, orange, oak, Chinese elm, peach, pine, cypress—any kind! ALL BLOOM and even BEAR FRUIT. All perfect healthy specimens—but miniature in size! Make costly home decorations and expensive centerpieces. (SOLD FOR OVER $1,500 EACH) Big demand. Costs only pennies—takes only minutes per week. IT'S EASY! Fun! A new fascinating hobby—a new fabulous $$$$ business. Send for free secret plan details and real seed.

HELP US FILL HUGE DEMAND!
These trees are being demanded by STORES CLUBS • HOTELS • FLORISTS • HOUSEWIVES • INTERIOR DECORATORS • COLLECTORS • HOBBYISTS — A Big Money Opportunity FOR YOU.

FREE! GENUINE SEED AND PLAN!

NATIONAL NURSERY GARDENS, Dept.. N5
8463 South Van Ness
Inglewood 4, Calif.
Rush me FREE plan and seed IMMEDIATELY!
Name _____
Address _____ Zone _____
City _____ State _____

Copyrighted material

MAKE $15,732.00 IN ONE SUMMER $9,504.00 WITHOUT LEAVING YOUR HOME

DON'T READ THIS!

Unless you are near a healthy fire extinguisher or a plentiful supply of WATER. We cannot assume responsibility if this ad breaks out in ROARING FLAMES. So please do stop reading this until you have taken the necessary safety precautions. Yes, we have an item that's H O T —so H O T that we are not going to say other than the usual words of a good product for fear of setting this good magazine on *FIRE*. This product is NEW! SENSATIONAL! COLOSSAL! AMAZING! and REVOLUTIONARY.—NO! No long story—All we have to say, and this is modestly, we have an ELECTRICALLY controlled bulb that is the BEST insect killer CONSOLIDATED RESEARCH has been able to produce—bar none. Not to be compared with any other unit ever sold.

Testimonials like these are pouring in by the hundreds.

"*It works like a charm. I am amazed at its results.*"—Mrs. A. F. Wills, Atlantic City, N. J.

"*Your magic bulb has at last solved my roach and fly problem.*"—Mrs. C. I. Thompson, Miami, Fla.

"*Has given my family endless hours of comfort living.*"—Mr. P. V. Zane, Los Angeles.

You have heard of the 7 Wonders of the World. Now, consolidated research introduces the 8th Wonder, acclaimed a MUST in every home and establishment. Being hailed by salesmen as the biggest MONEY MAKER since the opening of the U.S. MINT.

ABSOLUTELY EVERYONE

Now that you have taken the safety precautions, read every word in this ad, as we have said above, this item is **HOT,** so hot that to be extra safe we have ordered the publishers not to use any **RED** ink. Now, getting serious, fellows, here's the scoop. We are going to do **EVERYTHING** to make you the most welcomed salesman to ever approach a customer. We will give you **GLOSSIES, MATS, IMPRINTS,** all the material needed for an immediate mail order set up, also documented test reports of how prominent colleges and testing labs, **RATE** our product, also at your disposal is a powerful pulling pitchman sound T.V. movie on Bug Weapon. The production value of this film cost us more than $2000.00, **PLUS BELIEVE IT OR NOT** an advertising allowance. We will **PRE-SELL** this Bug Weapon for you, by launching a tremendous advertising barrage, including almost all national magazines, radio, and T.V. The entire population of the U.S. will be put in a buying mood. Especially so since hundreds of insects will help you make every sale. They will dive bomb about him, molest his comfort, interrupt his sleep, destroy his property, and spread contagious diseases about his home, and food. Business establishments suffer enormously combating the ugly insect problem. They will greet you with arms wide open. It's a tested natural with **STAGGERING** public acceptance and mountainous profits. Yes, you will be **WELCOMED,** you will be **THANKED,** most important you will make **MONEY.**

NATIONAL VOLUME SALES CORP., Research Dept. PS-5
1024 Cotiman St., Phila. 11, Pa.

DEATH

TO DISEASE-CARRYING, DESTRUCTIVE AND ANNOYING PESTS

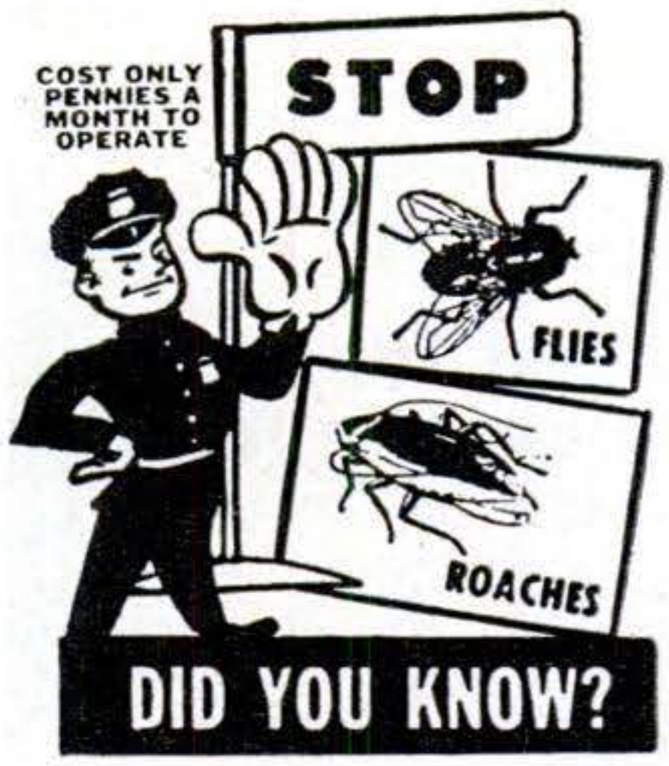
AMAZING NEW INVENTION

KILLS ALL TYPES OF INSECTS

SCIENTIFICALLY-AUTOMATICALLY

10-YEAR GUARANTEE

Not a gadget — not a halfway measure. Not to be compared with flimsy, untried imitations. A finished quality appliance. Carries an ironclad 10-year guarantee and parts replacement policy. Bound by signature.



DID YOU KNOW?

that flies and roaches are suspected carriers of 13 communicable diseases including **POLIO.** One fly can reproduce 8 million others. Flies seldom leave anything without first excreting on it. Don't take chances with your health. **YES,** you can now insect proof your home without lifting a finger. Throw out old fashioned fly swatters, and messy spray guns. A new, small, clean, decorative, little bulb enables you to destroy **HUNDREDS** of types of **INSECTS** like **MAGIC.** Only one 2 hour application keeps killing disease carrying, destructive and annoying insects around the clock for more than 2 weeks. More powerful than D.D.T. yet harmless to humans, pets and plants. Approved **SAFE.** Not a gadget, not a half way measure. Carries a **10 YEAR GUARANTEE.** It must **KILL** not **TICKLE** roaches, flies, moths, ants, and hundreds of others or your money **REFUNDED.** For your health's sake order **SEVERAL** units **NOW.** Everyone send us a check, M.O. or cash for $2.98—C.O.D.'s accepted. Should you, after testing your unit, decide that you would like to join us in the sales of this new public servant, we will refund your $2.98 making your unit **ABSOLUTELY FREE.**

ODORLESS • SILENT • MYSTERIOUS

FREE DEMONSTRATOR COUPON

☐ Enclosed is $2.98. Send me one unit for my personal use.

☐ Enclosed is $2.98 in cash, check or M.O. Rush me one 20th CENTURY BUG WEAPON with sales aids, and LOWER wholesale prices. However, should I become an active salesman, you of the Volume Sales Outlet are to REFUND my $2.98 making my demonstrator FREE. Furthermore, I must agree that everything you say be true or I will return everything for a refund.

☐ Send one MONEY MAKING sales kit C.O.D.

☐ Lost time is lost money. Rush me .....dozen BUG WEAPONS, at your wholesale price. Don't forget to include my FREE demonstrator and sales aids, C.O.D.
(I enclose $5.00 Deposit)

☐ Together with the enclosed order don't forget to show me how to make $4.37 on each $2.98. $15,732.00 in one summer. $9,504.00 without leaving my home.

NAME.....

ADDRESS.....

CITY.....STATE.....

(Members of the Mail Order Business Bureau)

NATIONAL VOLUME SALES CORP., Research Dept. PS-5
1024 Cotiman St., Phila. 11, Pa.

ABSOLUTELY EVERYONE MAIL THIS COUPON NOW!

Copyrighted material

WORLD'S GREATEST

CLASSIFIED OPPORTUNITIES

MAKE MONEY

SAVE MONEY

Here are hundreds of opportunities offered especially to the readers of Popular Science Monthly. Read them. Answer them! You can make and save money.

POPULAR SCIENCE MONTHLY — 353 FOURTH AVE. — NEW YORK CITY 10

Classified Ads only 90c per word insertion, payable in advance. Minimum ad 10 words. To be included in July issue, copy should be in our office by May 25. No cancellations accepted after May 15th. Address orders to O. K. Kelly, Classified Adv. Mgr.

1 AUTOMOBILES & MIDGET CARS

BOY'S Power-driven auto. Build your own. Complete plans 25c. Sypher Co., Box 39. Sta. F, Dept. PS, Toledo, Ohio.

CROSLEY Car owners? Join with 1,000 others from coast-to-coast. Big discounts on parts, write Crosley Club, Bedford, Pa., R-2.

HUNDREDS Of automobile catalogs—Amercan, antique, foreign; dealer books, glossy photographs, shop manuals; free motor magazines—offered by non-profit club. Write immediately; get on free mailing list. Auto Maniacs, Inc., Stockbridge, Mich.

BUILD Midget Auto or Racer. Send 25c for complete Literature. Micro Midget Motors, P. O. Box 2368, Stanford, Calif.

ANTIQUE Automobile color slides, 2x2. Illustrated catalog Free. Universal, Box 779P, Beverly Hills, Calif.

ENGINES, Wheels & Equipment for midget cars $10.00 up. Cauffiel Motors, Temperance, Michigan.

2 AUTO SUPPLIES & EQUIPMENT

BUY Wholesale nationally advertised auto supplies, thousands other products at big discount. Free "Wholesale Plan," American Buyers', 629-EE, Linden, Buffalo 16, N. Y.

NEW And Used Parts At Savings. Complete guaranteed parts service for all models cars and trucks—1924 and later. Largest in the West. Army parts specialists. No catalog—Write for quotations. Fast Mail Order Service. Pioneer Auto and Truck Parts Co., 788 W. 13th Avenue, Denver, Colorado.

FORD-T parts. Most complete stock in U.S. for All old cars. Try to stump us. B. S. Wisniewski, Milwaukee 7, Wisconsin.

LATEST Custom accessories . . . Items not in stores. New low prices. Push Button doors, trunks, windows, etc. New illustrated catalog . . . biggest ever. 25c. Eastern Auto, 3319-D, South Grand, Los Angeles 7, California.

BIG All-new 1955 speed-sport-chrome and custom hot-rod catalog. Entirely new and different. Illustrating thousands nationally known products at tremendous discounts! Send 25c (Refundable). Gotham Products, 1155 Broadway, New York 1, N.Y.

LACHAPELLE'S Patented Treatment. Will make your motor better. $3.00 postpaid. Ferns, Box 71827-D, Los Angeles 1, Calif. Free data.

SAFETY Belts; Several types, colors. $5.95 postpaid complete. Literature. Box 1142 Poughkeepsie, N. Y.

WHOLESALE—61,000 items for any car or truck. 50% to 60% off. You name it, we have it. Send dime for particulars. Brian Cerva, Box 224, LaGrange, Illinois.

MOTORISTS! Truck Drivers! Stop flat tire worries forever. Free details. KB, Box 863, Chicago 42, Ill.

ST. Christopher medal, beautiful, for car, airplane, boats. $1.00 postpaid. (Refundable). Steven's Jewelers, 304 Diamond, Pittsburgh 22, Penna.

USE THIS HANDY INDEX TO FIND WHAT YOU WANT

Advertising, Agencies for Advertisers . . . 53
Agents Wanted . . . 43
Air Conditioning . . . 69A
Antiques, Relics & Indian Goods . . . 29
Authors Service . . . 52
Auto Supplies & Equipment . . . 2
Auto Trailers . . . 3
Automobiles & Midget Cars . . . 1
Aviation . . . 5

Batteries, Generators, Etc. . . . 6
Boats, Outboard Motors . . . 11
Body-Building Courses, Jiu Jitsu, Etc. . . . 12
Books & Magazines . . . 23
Build It Yourself . . . 66
Business Opportunities . . . 37
Business Service, Information, Name Lists . . . 50

Cameras, Photo Supplies . . . 34
Camping Equipment & Tents . . . 16
Cartooning, Sign Painting, Chalk Talks . . . 54
Chemistry & Physics . . . 41
Claim Investigators . . . 37A
Coins & Currency . . . 26
Contests . . . 46

Detectives . . . 47
Dogs, Birds, Hamsters & Pets . . . 17
Drawing Supplies & Equipment . . . 76

Educational & Instruction . . . 45
Electrical Supplies & Equipment . . . 7
Engines, Motors, Etc. . . . 10

Farms, Other Real Estate . . . 19
Field Glasses, Telescopes . . . 14
For Inventors . . . 60
For Sale Miscellaneous . . . 71
For the Home . . . 69
Formulas, Plans, Etc. . . . 39
Frog Raising . . . 18

Geiger Counters, Treasure Finders . . . 77

Help Wanted . . . 42
High-grade Salesmen . . . 44
Hobbies, Collections . . . 31
Home Craftsman . . . 65
Hypnotism . . . 24

Inventions Wanted . . . 61

Language Outfits . . . 48

Machinery, Tool Supplies, Etc. . . . 9
Magic Tricks, Puzzles, Etc. . . . 25
Manufacturing . . . 63
Minerals & Precious Stones . . . 30
Miscellaneous . . . 79
Models, Model Supplies . . . 64
Moneymaking Opportunities . . . 38
Motion Pictures, Slides, Sound Equip. . . . 33
Motorcycles, Bicycles & Supplies . . . 4
Music, Song Writers & Records . . . 35

Of Interest To Women . . . 70
Old Gold, Jewelry, Watches . . . 67
Old Stamps Wanted . . . 27

Patent Attorneys . . . 59
Patents For Sale . . . 62
Personal . . . 80
Photo Finishing, Photocopies, Etc. . . . 32
Plastics . . . 40
Plays, Stories, Etc. . . . 49
Poultry & Supplies . . . 21
Printing, Multigraphing, Etc. . . . 57
Printing Outfits, Supplies . . . 58
Profitable Occupations . . . 22

Radio, TV, Supplies & Equipment . . . 36
Razor Blades, Shavers . . . 74
Rubber Stamps & Office Supplies . . . 56

Special Services . . . 51
Sporting Goods, Guns, Fishing Tackle, Etc. . . . 15
Stamp Collecting . . . 28

Tattooing Supplies . . . 75
Taxidermy . . . 13
Tobacco & Pipes . . . 68
Trees, Shrubs, Roots & Herbs . . . 20
Typewriters & Office Machines . . . 55

Wanted to Buy . . . 72
Watch Repairing . . . 78
Wearing Apparel . . . 73
Welding, Soldering . . . 8

AUTO Accessory & Parts Catalog. 1955 edition—All New! 148 pages. Save up to 50%—over 50.000 items, including Hollywood Accessories, Hi-Speed Equipment, Rebuilt Engines, all parts and accessories for all cars and trucks! Hard-To-Get parts! Send 25c (refundable). J. C. Whitney, 1919-PS Archer, Chicago 16, Illinois.

ELECTROPLATE autoparts, novelties, mirrors. Easy, inexpensive home processes. Free booklet. Tyco Metals, Box 13231-FC, Houston 19, Texas.

HOT Cam Handbook explains duration, overlap, degreeing, valve reworking and much more. Illustrated, authoritative. Be first to know new important Cam grinding secrets. Send dollar now for your postpaid copy. Satisfaction guaranteed. Frank Morgan Co., Marysville 2, Calif.

CAR Burning oil? Losing compression? Try a tube of Clifford's Compression Seal. $2 postpaid. Clifford's Engineering 1329 Seventh, Aurora, Illinois.

GUARANTEED! Original "Vapor Injector" boosts power, mileage. All cars! $3.95 postpaid. Dealerships. Golz Enterprises, New Hampton, New York.

RADIOS Custom for 1952-3-4-5 Fords $38.90. Free literature. Nordic Radio, Box 582, Evanston, Illinois.

TAPPET noises in Fords, Chevrolets and Mercurys stopped with Kaye Tappet Silencers. Free Literature. Kaye Products, 2067C So. Layton Blvd., Milwaukee 15, Wisconsin.

COMBAT Battery cable corrosion. Formula and instructions $1.00. John C. Chester, 20-A Cromwell Place, Sea Cliff, New York.

FASCINATING Wartime blackout lamp brand new in original carton $1.00. Shutter Shop, Calder Building, Harrisburg, Pa.

SAFETY Belts for your car. Details free. Safe-T-Car, 309 E. Michigan, Indianapolis, Indiana.

NEW Shine auto wax, enough for six applications 100% guarantee. $1.00. 4126 Wainwright, Oak Lawn, Illinois.

CONVERTIBLE Tops Custom Made. 3-Ply Waterproof Materials. Black—Tan $19.95. Installation Instructions enclosed. Ful-view plastic window $3.95 additional. State make—year of car. Ben's Auto Tops, 488 East 163rd Street, Bronx 51, N.Y.

DOLLARS in the mail for you! Put your ad here and watch orders fill your mailbox. For as little as $9.00 you can advertise your product or service in the classified opportunities columns of Popular Science Monthly. The July issue closes on May 25. Write today for order blank. O. K. Kelly, Classified Adv. Mgr., Dept. 55, Popular Science Monthly, 353 Fourth Ave., New York 10, N. Y.

3 AUTO TRAILERS

TRAILER Level. Clamps on coupler jack plate. Level your trailer in seconds. No guess work. Fits all trailers. $1.50 postpaid. Little Devil, 118A E. Pomona Ave., Monrovia, Calif.

Copyrighted material

BUILD your own trailer! Plans for all kinds. Illustrated catalog 10c. Jim Dandy, 125-S, Wausau, Wisconsin.

ASSEMBLE Yourself kits. Slip-on cabin coach for all pick-up trucks. Trailer blueprints. Boat trailers. Literature 10c. Comstock Trailers, 585-S, Parsons, Kans.

TRAILER Manual. Over 200 pages. 250 pictures. Tells how to: buy, tow, travel, build, live-in, repair. $1.98. Trail-R-Club of America, Dept. PS-5, Box 1376, Beverly Hills, California.

EXCEPTIONAL Expanding eight foot trailer. Accommodates family of five. Build Yourself—literature, 10c. Framar Company, Wilmington, Mass.

4 MOTORCYCLES, BICYCLES AND SUPPLIES

MIDGET Car chassis $25. Shaft drive Indian motorcycle $45. Whizzer motorbike $30. Maytag engine $3. Four airplane tires $3. (Mailorder only). Send 25c (35c First Class Mail) for Directory-Catalogue Number 65, just out, listing these and hundreds of other bargains in new and used midget cars, motorscooters, engines, homebuilders parts, plans, etc. Midget Motors Directory, Athens, Ohio.

NSU and BMW Motorcycles, 2 to 35 H.P. Singles and Twins. Chaindrive and Shaftdrive. Butler & Smith, P.O.B 45, New York 24, N. Y.

SERVICYCLE $20.00; Whizzer motorbike $25.00; Cushman motorscooter $25.00; Midget auto $25.00. Rush 25c (35c first class mail) for new catalog #957 listing many other amazing bargains in motors, midget cars, motorscooters, motorbikes, construction plans. Associated, Box 534, Toledo, Ohio.

REBUILT 1½ to 3 H.P. engines $9.00 up. Cauffiel Motors, Temperance, Michigan.

5 AVIATION

FLYING Saucer! Propelled by centrifugal force. Propulsion details—$1.00. Decker Engine Works, Plasterco, Va.

AVIATION Surplus bargain catalogue. One dime. Ort, Thomasville 22-E, Pa.

BUILD A man carrying Helicopter Jet Engine yourself! "Practical Ram Jet Design", $1.00. "Practical Pulse Jet Design" —$1.00. Decker Engine Works, Plasterco, Va.

PROPELLERS, plans, kits for air boats, snow sleighs. Immediate delivery. Catalog 25c. Banks-Maxwell, Box 3301G, Ft. Worth, Texas.

BUILD Pulse jet helicopter. Plans $6.00, Rovin Engineering, 800h University Ave., Ithaca, New York.

6 BATTERIES, GENERATORS, ETC.

EDISON Nickel Storage Batteries. Any voltage, any amperage. Unconditionally guaranteed. Power Plants, Generators, Motors. Literature. Hawley Smith Co., Croton Falls 2, New York.

7 ELECTRICAL SUPPLIES & EQUIPMENT

ELECTRIC Pencil: Engraves all Metals. $1.50. Beyer Mfg., 10511-C Springfield, Chicago 43.

ELECTROPLATING equipment, anodes and solutions for all types of plating. Instructions. Assemble your own plater and save. Free Catalog. Ramyr, Dept. E-2, 1624 East First Street, Los Angeles 33, California.

LAMPS—25c brings bargain catalog showing all parts for repairing, building. Contains instructions for electrifying vases, oil lamps, etc. Gyro Lamps, 5402B Clark, Chicago 40.

NEW 1955 Lamp Parts Catalog showing everything you need to make and repair most types of lamps. Everything at lowest wholesale prices. Send only 25c today for both catalog and wholesale price list. Gearon Co., Dept. 503-A5, 27 S. Desplaines, Chicago 6, Ill.

ELECTRIC Blanket trouble? Use "Snuga Bed" $24.95. (Free Circular.) Thomas Fuscaldo, 429 Preakness Ave., Paterson 2, New Jersey.

MOTOR Rewinding supplies, instructions, equipment, plans—Modern, 507 East 75th, Kansas City, Mo.

CLOSEOUTS: 1/80th HP enclosed motor, 12" blade, $7: 1/80th open motor, 8" blade, $6: 1/40th enclosed motor, 10" blade, $7: ⅓ Westinghouse split-phase motors, $21: 6", 7", 8" blades, 50c: Cord sets, 15c: #36 Fahnstock clips, 5c: 90-A soldering lugs, 5c: 6 ampere charger ammeters, $1: 0-15 precision DC ammeters, $5: ¾" thread magnetic drain plugs, 40c: 6 ampere, 115 volt, G-E rectifiers, $110: Nos. 29, 30, 31 SCE, # 31 DCC, #44 HE magnet wire at closeout prices. Special rectifiers, battery chargers, transformers made to specifications. Strickland Electric Co., Columbus 11, Ohio.

MOTOR Bargains, rewinders supplies, instructions, equipment plans. Modern, 507 West 75th, Kansas City, Mo.

HOME Appliances, Test and Repair Yourself, Tester and Instructions. Send $2.59. Winken Service, Box 536, Stamford, Conn.

8 WELDING, SOLDERING

NEW And different oxy-acetylene outfit welds, cuts, heats, brazes with interchangeable tips. No attachments needed. Light, portable. Complete outfit, full instructions, only $76.50. Special moneysaving plan for oxygen and acetylene supply. Write for free literature today: Dept. S, Linde Air Products Company, 30 East 42nd Street, New York 17, N.Y.

BUY Welding supplies direct from manufacturer. Cable, welding rods, helmets, etc. Portable arc-welders and kits at tremendous savings. Free factory catalog! LeJay 23, Minneapolis, Minnesota.

"BUILD-Ur-Own" a.c. welder and a.c. power plant with a good used engine and low cost Hobart generator. Welds anywhere and supplies 5KW stand-by power for any emergency. Write Hobartweld, Box P-553, Troy, Ohio.

ACETYLENE Welding outfits new $49.00; used $29.00; Arcwelders $56.50. Eagle Welding, Dept. 42, 5085 Broadway, Chicago 40, Ill.

WELDERS, $29.50, $49, $54. Morris, 1070 Inner Drive, Schenectady, N. Y.

A. C. Welders, four sizes, lowest prices. Free Literature. Holgerson Co., Canton, Kansas.

WELDING supplies and low cost welders direct from factory at tremendous savings! Wholesale catalog and booklet "How To Weld" 10c. LeJay 323, Minneapolis, Minn.

9 MACHINERY, TOOL SUPPLIES, ETC.

ALLEN Two Ton Power Bench Type Punch Press. $97.50. Circular. Allen, Dept. PSB, Clinton, Missouri.

MILLING Attachment for 6" Atlas-Craftsman Lathes $9.95. Satisfaction guaranteed. Barrel, 118A E. Pomona Ave., Monrovia, California.

AIR Compressors on wheels. Factory prices. Free folder. Illinois Mfg. & Supply, 1831 S. State, Chicago 16, Ill.

BIG Buys now in surplus machinery, tools, power units, drills—Direct from government—List $1.00—Brody, Box 8-CA, Sunnyside 4, New York.

SAVE, Buy Surplus Direct from Government. Our Publication "Surplus Sales" lists items for Sale by US Government. Power tools, machinery, trucks, jeep, trailer boats. Hundreds others. Price $1.00. Box 169CAA, East Hartford 8, Conn.

SEE Better, work better, with adjustable machine light for lathes, grinders, etc. Finest made. 18" extension—$5.95, 26" extension—$6.95 postpaid. Satisfaction guaranteed. Jason, 4902 W. 13 St., Cleveland 9, Ohio.

POWER tools, equipment, wholesale prices. Free bulletin. HomeCrafter's Cooperative, Grand Rapids 6, Michigan.

10 ENGINES, MOTORS, ETC.

WINDING Data, listing 225 motors, single and three phase. $1.00. Motor Data, Box 7631, Kansas City 28, Mo.

PUMP Millions gallons well water, $6.95. Free literature. UAT Mfg., Hicksville 273, N.Y.

REWIND Motors yourself. Complete instructions $1.00. Lewis Mfg., Howell 11, Michigan.

GM71-HV Discarded injector parts wanted. Mayer, 7120 Carnegie, Cleveland 3, Ohio.

MOTORS, One H.P. $22.50, three phase. Nauta, 140 Bloomfield, Paterson, N. J.

A.C. Generators 750 Watt $38.50. Twin cylinder compressors with ⅓ horse $22.00. Motors 1 horse $37.50. Butler, 1885 Milwaukee, Chicago 47.

ENGINES. Power tools. Mower kits. Motorbikes. Bargain catalog 10c. Loren Products, Box 436, Danville, Illinois.

REBUILT 1½ to 3 H.P. engines $9.00 up. Cauffiel Motors, Temperance, Michigan.

11 BOATS, OUTBOARD MOTORS

NEW, used rebuilt marine motors. Marine conversions, fittings. Free Catalog. Stokes Marine Supply, Dept. 23, Coldwater, Mich.

OUTBOARD Motor Parts—New—Used for all makes. Send stamp for price quotation, listing parts needed. Outboard Motor Mart, Inc., 229D State Street, Boston, Massachusetts.

BUY Wholesale nationally advertised outboards, thousands other products at big discount. Free "Wholesale Plan." American Buyers', 628-EE, Linden, Buffalo 16, N. Y.

FREE Catalog! Boat Kits, Trailers, Fiberglas, Marine Hardware. Luger Industries, Dept. K, 4452 Nicollet Avenue, Minneapolis, Minnesota.

FULL size, cut-to-shape Boat Patterns, Blueprints. 7½-38 feet. New 1955 illustrated "Build A Boat" catalog of 50 naval architect-designed Cruisers, Runabouts, Sloops, Skiffs, Outboard Boats, Sailing, Racing, Houseboats, 50c. Marine Hardware Catalog, $1.50. Bigger, better 1955 "How to Build Boats" book, $2.50. Polywog Houseboat Plans, $12. Cleveland Boat Blueprint Co., Dept. A-77, 9400 Steinway, Cleveland 4, Ohio.

SAVE money. Boat Accessories Catalog. 25 cents in coin. Garland Frasher Marine Sales, 2626-A—Fith Avenue, Huntington, W. Va.

BOAT Supply catalog and big list used Inboard and Outboard motors. Send 35c. Masters, 214 W. Chicago Ave., Chicago 10.

BOAT Trailer—Save with Do It Yourself kit. Taylors Trailers, Dept. P.S.-5, Muskegon, Michigan.

BIG Discounts on marine hardware. Send 35c for over 1000 listed bargains. Marine Associates. Dept. S, Box 6188, Long Beach 11, California.

FREE Instructions. Boat docks. Built, installed out of water. Dock Products Company, Box 1461, Minneapolis 6, Minn.

WATER-Skiers. Do-It-Yourself Ski Kits, 2, 6 Ft. Long, 7¼ Wide. Bended Fir Blanks. Adjustable, Wing Nut Foot Bindings, Runners, Screws, Accessories $18.95. Orders Prepaid. Guaranteed. Do-It-Yourself Ski Company, Box 1654, Milwaukee, Wisc.

WINCH—Heavy-duty, powerful worm gear drive; 10-to-1 mechanical advantage. 3,500-lb. capacity. Equipped with housing and crank ready to mount on boat trailer, truck or other device where extra strong lift or pull required. Only $24.95 complete. Order direct from Lone Star Boat Manufacturing Company, Box 698, Grand Prairie, Texas.

16-18-20 FOOT outboard powered catamaran plans $1.00. Also other plans, literature 10c. Widd Hauber, 2451 18th Ave. No., St. Petersburg 2, Florida.

MARINE conversions for Ford and Jeep engines. Catalog 10c. Lehman Manufacturing Co., 972A Broad St., Newark 2, N.J.

PLANS, Patterns, Frame Kits, for modern boats 12'-22'. Complete selection of modern boats especially for the amateur builder. State your requirements or send 40c for our complete catalog. Glen Marine, Box 568, Compton, Calif.

FIBERGLASS Top marine grade. Yard or kit. Dealer inquiries invited. Ontario Fiberglass Co., Ontario, N. Y.

SEASPIDER—Unusual, amazingly fast outboard Hydro development. Easily built. Literature 10c, complete plans $1.00. Aircraftsman, 211 Lumley, Jackson, Mich.

FIBERGLAS Boat coating. Wholesale-retail. Complete information catalog—15c. Gem-O'-Lite, Box 6862B, North Hollywood, California.

Copyrighted material

AIR boat plans, kits, supplies. Catalog 25c. Banks-Maxwell, Box 3301J, Ft. Worth, Texas.

FREE Folder—Steering wheels, windshield brackets, small items. Marine Sales, 3604 Stevens, So., Minneapolis 9, Minn.

WE Defy Competition. 12 Foot Boat Kit $47.95. Precut Mahogany Frames Marine Plywood. Free Folder. Afco, Box 113, Belding, Michigan.

12 BODY-BUILDING COURSES, JIU JITSU & ATHLETIC EQUIPMENT

BUILD powerful arms, chest, shoulders! 22 exercises, $1. Fonsad, Box 601-C, 1100 Market, Wilmington 99, Delaware

PUSHED Around? Why take nonsense from bullies, wise guys, other pests. Give them the surprise of their lives. Easy when you know Police Jiu Jitsu. Complete fully illustrated course comes in one volume, same as taught police and members of Armed Forces. Send $1 now, we will send Police Jiu Jitsu postpaid by return mail. Satisfaction guaranteed. Books Publishing Company, Amityville 2, N. Y

BARBELLS, Dumbbells, Exercise equipment Courses. Free booklet. Good Barbell Co., Reading, Penna.

13 TAXIDERMY

MODERN Taxidermist Magazine, Greenfield Center, 21, New York. Devoted entirely to taxidermy methods, articles, photos. Trial year's subscription $1.00.

14 FIELD GLASSES, TELESCOPES

BINOCULAR Buys! America's largest selection. Free 56 page Binocular-Telescope Catalog. $3.95 to $250.00! United, 9043 S. Western, A-1116, Chicago 20. Dealers Wanted.

FREE Catalogue! Thousands war surplus optical bargains. Lenses, Prisms, Telescopes, Binoculars, etc. Send $1.00 for 10 Lens Hobbyist Set and Project booklet. G. Jaegers, 691 West Merrick Road, Lynbrook, New York.

MICROSCOPES, prepared slides, biological stains, oculars, illuminators, mechanical stages, objectives, mounting media, parts, specialized equipment. Premium quality merchandise, lowest prices anywhere. Send 10c for Big Illustrated Microscope Catalog and Price List: Benjamin Miller, 134 W. 32nd St., Rm. 204-B, New York 1, N. Y.

IMPORTERS' amazing prices Precision Binoculars, 22 models. Free trial. Folder, "Binocular Selecting," catalog free. Prentiss Importers, Mercury Bldg., West Los Angeles 25, Calif.

REFLECTOR Telescope Kits $6.25 (3") to $175, (12"). Mirrors, Cells, Focusing Mounts, Tripods, Eye-Systems. Anything, everything in telescopes. Free Illustrated Catalog. Also ready to use telescopes from $25. to $176. Inquiries to Esco Products, 1428 Willow Ave., Dept. PSM-5, Hoboken, N. J. Sales Showroom, 166 Church St., N.Y.C.

MICROSCOPES, binoculars, everything optical and photographic direct from importer. Lowest prices. Free catalog. Magnification Instrument Co., 2 E. 45 Street, New York City.

REFLECTING Telescopes, completely assembled. 60X. $29.75. Guaranteed Observatory clearness. Free information. Skyscope, 475 Fifth Avenue, New York 17.

BINOCULARS, Telescopes, Microscopes, terrific values $3.98 up. Request free money saving catalog. Criterion, Dept. S30, Hartford, Conn.

WAR Surplus bargains! Millions of lenses, instruments, telescopes, binoculars, components and complete line of astronomical telescope items. World's greatest optical market place! Send only $1.00 for beginner's 10-lens kit and big instruction booklet Stock 2-CN. Write for catalog CN Free! Edmund Scientific Corp., Barrington, New Jersey.

BUILD your own Reflector Telescopes, complete Kits, Mirrors, Eyepieces, Tripods, all other Accessories. Request free, complete illustrated literature. Busse Sales, Dept. KP6, Hartford, Connecticut.

TELESCOPES, Microscopes, binoculars, past quarter century. Comprehensive scientific instrument catalog $1.00. None free. Dollar deductible from orders. Harry Ross, 70 West Broadway, New York, N. Y.

DYNASCOPE—new sensational Reflector Telescope 65X-130X-167X. 4 power Finder, fully achromatic, Hardwood folding Tripod, complete ready for use. Send for details. Criterion Manufacturing, Dept. PS13, Hartford, Connecticut.

LOWEST Prices. All Sizes. Binoculars, Telescopes, Microscopes. Also Repaired. Free Catalogue. Joe's Binocular Sales, 4827 Second Street, Detroit 1, Mich.

400X TELESCOPE makers kit contains focusing tube, erector, five finished lenses and instructions—$3.75. Giant 100X Astronomical telescope completely assembled with tripod—$15.00. Free information. Suffolk Science, Mattituck 4, N. Y.

ASTRONOMICAL Telescopes . . . Special!! B-107s . . $95.00. Books. Rasmussen-Reece, Amsterdam, New York.

15 SPORTING GOODS, GUNS, FISHING TACKLE, ARCHERY, TRAPPING

180 PROFUSELY illustrated pages, antique pistols, swords, daggers, armor, etc. 50c. Robert Abels, PS860 Lexington Ave., New York 21.

BUY Wholesale nationally advertised sporting goods, thousands other products at big discount. Free "Wholesale Plan." American Buyers', 627-EE, Linden, Buffalo 16, N. Y.

SWIMMERS! Send $3.95 for Imported French Mask. Catalog of Skin Divers' Equipment and Books 25c. Aquafun P-S, Davenport, Iowa.

FREE Fishing Catalog—148 Pages, Over 3,500 Hard To Find Fishing Specialties. Netcraft Company, Dept. PS1, Toledo 13, Ohio.

FISHERMEN—Make your own sinkers with our molds. Free illustrated booklet. Reading Instrument Co., Box 78, Reading, Pa.

TUBULAR Glass Rod Kits, Casting, Spinning and Boat, Fresh and Saltwater. Build custom rods at home for profit. Free listing of blanks, guides, handles and accessories. Fisherman's novelty key chain 25c. Rodman, Dept. C, Box 41, Wauwatosa, Wisc.

FISHERMEN "Surwurm" artificial worm on hook. Rebaiting unnecesary. 3 for $1. B. Cohen, Malone N.Y.

1955 SPINNING, Casting, trolling reels, rods at wholesale prices. Send name for list. Examples. Orvis #100—$17.95. Mitchell #300—$18.95. Pflueger Supreme—$23.95. Tri-State Tackle Company, 4464 Lee Hts. Road, Cleveland 28, Ohio.

PLUG-Getter recovers lures snagged underwater, any depth, any type obstruction. Small and handy; Fits tackle box. Actually pays for itself many times. Satisfaction guaranteed. Only $3.75 postpaid. Order today . . . . filled same day received. P & P Plug-Getter Co., Dept. PS-5, Harrison, Arkansas.

ARROWMAKING Kits — Save 50% — Completes dozen arrows—selected shafts, feathers, points, nocks, decals, lacquer, glue—complete instructions. Target Arrow Kit $3.95—Field Kit $4.50—Hunting Kit $6.95. Postpaid. M. Anger, 66 West 85 St., New York 24, N. Y.

HANDLOADERS! For accuracy, economy . . demand C-H Reloading Equipment. Write for Free information. C-H Die, 1808 N. Potrero, El Monte 31, Calif.

ARCHERS—Savings on all equipment—Complete catalog plus free 24 page book—send 25c (refunded). Pride Archery, Cedarbrooke, Danbury, Conn.

ANTIQUE gun prices. Free book catalog. Pioneer Press, Harriman, Tennessee.

FLY-Makers! 1955 free catalog. D. H. Thompson, 335 Walnut Avenue, Elgin, Ill.

FREE Ammunition list from America's large ammunition house. Act now! Send for this list today. Philip Jay Medicus, Dept. P5, 18 Fletcher Street, New York 38, N. Y.

5,000 BARGAINS, firearms, binoculars, war relics, catalog 50c. Smith Museum, Runnemede, N. J.

MOLDS for Fisherman's Sinkers, Jigs, Squids, Casting and Spinning Lures. Free Catalogue. Sweet's Molds, Tonawanda 3, New York.

JAP rifles altering American shells $6.00. Jap shells $3.65, catalog 5c. TP Shop, West Branch 10, Michigan.

2000 COLTS — Winchesters — Western guns. Fantastic collection Antique-Modern guns, swords, daggers, armor, ammunition, accessories. Deluxe catalog 50c. Agramonte's, 201 Warburton, Yonkers 2A, N.Y.

TRADE Reloading tools for guns. Write fully. Firearms, 1517 Gardner, Los Angeles 46, California.

MANY Modern, Antique guns. List 10c coin. Ed Howe, 26 Main, Coopers Mills, Maine

SAVE 50% Finest Archery equipment. Revealing "How to Bow-fish, Bow-hunt, Make Own Tackle, Improve Accuracy" Booklet plus catalog. "Both Free!" Malibu Archery, 1036-NM LaBrea, Los Angeles 19, California.

SLINGSHOT Ammunition. — .25 Cal. Make it from inexpensive lead scrap. New cold-forming die press, $3.95 postpaid. Warranted. No COD's. ABCO, 3916 Wyandotte, Kansas City, Missouri.

BUY Wholesale! Guns, fishing, sporting goods. Free details! National Buyers Service, Box 426FC, Oakland, California.

SUBPLANE frogman subsurface aquaplane, circular 10c, kit $33.50, complete $49.50. Service Engineering, 7959 Sparling Road, Goodells, Michigan.

16 CAMPING EQUIPMENT & TENTS

CAMPING equipment & tents direct from manufacturer. Send 10c for 100 page guide-handbook-catalogue. Morsan Tents, 10-21G 50th Avenue, Long Island City 1, New York.

WOOL Camp blankets ideal for campers, Boy Scouts. 62x84 3½ Lbs. Gray, khaki, maroon, $3.99 ea. Litchfield Wool Blanket Company, Box 562, Litchfield, Minnesota.

17 DOGS, BIRDS, HAMSTERS, RABBITS & PETS

MAKE Big Money! Raise Chinchilla Rabbits. Cash Markets Supplied. Write Today! Rockhill Ranch, Sellersville 16, Pa.

RAISE moneymaking Angora, New Zealand Rabbits. Particulars free. White's Rabbitry, Jackson, Michigan.

HAMSTERS—golden: young, $4.00 pair: fully developed, $5.00 pair. Adirondack Hamstery, Prospect 87, New York.

START Right By Knowing Facts about rabbit raising. Illustrated booklet describing all breeds, Housing, Feeding, Breeding, Marketing. 48 pages 10 cents. American Rabbit Breeders Association, 80 ARBA Building, Pittsburgh, Pa.

RABBITS—Literature, prices free. Big 8x11 inch color illustrated book $1.00, tells everything—raising, feeding, hutches, diseases, markets. P. Grinsteads, Edwardsville, Illinois.

GUINEA Pigs. Home enterprise. Booklet free. Taylors, B426B, Hapeville, Georgia.

MAKE Big Money raising Chinchillas for us. Free catalog. Keeney Brothers, New Freedom 9, Penna.

RAISE Chinchilla rabbits. Also New Zealand whites. Free catalog. Wilson's Rabbit Ranch, Greer, South Carolina.

GROW Mushrooms, Cellar, shed, and outdoors. Spare, full time, year round. We pay $3.50 lb We paid Babbitt $4,165.00 in few weeks. Free Book. Washington Mushroom Ind., Dept. 177, 2954 Admiral Way, Seattle, Washington.

NATURALISTS Catalog 15c. Hamsters $2.75 pair. Chameleon 85c. 200 Mealworms $1.25. Quivira Specialties, Topeka 10, Kansas.

"OPPORTUNITIES Unlimited Raising Waterfowl" Booklet Free. Sunny Creek Farms, Red Lake Falls, Minnesota.

18 FROG RAISING

AMAZING Profits, raising frogs, crayfish. Write Vol Brashears, Berryville, Ark.

19 FARMS, OTHER REAL ESTATE

HOMESITES $400 — Convenient payments. California's finest garden section. On Morro Bay's scenic shores. Wonderful fishing, boating, bathing. Fertile soil, softest water, temperate climate, congenial community. Free literature. Richard Otto, Department P, San Luis Obispo, Calif.

Copyrighted material

CANADIAN Tax sale lands for three dollars an acre and up. Small monthly payments. Farms, timber, hunting and fishing camps, minerals. Limited number of properties. Write at once for free catalogue. Tax Sale Service, Room 113, 120 Bloor St., West, Toronto 5, Canada.

STROUT Catalog—Mailed Free! Farms, homes, businesses, 35 states, coast-to-coast, 3,036 bargains described. World's Largest; 55 years Service. Strout Realty, 255-ZB 4th Ave., New York 10, N. Y.

FLORIDA. Lakefront homesites on Eustis-DeLand highway. Excellent fishing-hunting. $10.00 monthly without interest. Complete price $245.00-$995.00. Literature. Write Roepke's, Eustis, Florida.

CALIFORNIA Ranch and farm lands. $15 to $35 acre. 10 to 640 acre tracts. Easy terms. 100% oil and uranium rights. Free catalog. Pacific Tax Sales, 1621-B Cahuenga, Hollywood 28, California.

FLORIDA'S Finest homesites—Center Sportsmen's Paradise. Low prices—easy terms. Big, beautifully wooded tracts. Near famous Panama City pleasure resort. World's finest beaches. Lovely lakes. Ideal year-round weather for hunting, fishing, boating. Particulars Free. Douglas Wood, Fountain, Florida.

44 ACRES Level best soil all improvements. Bethlehem three miles. A.B.E. Airport one mile. Catasauqua 1½ miles. Northampton 1½ miles. Martin Leibenguth, R-2, Bethlehem, Penna.

$5.00 PER Acre. Missouri Land. Warranty Deed. Free List. John Calvert, Plant City, Florida.

HOMESTEAD Land—British Honduras. File-develop while living U.S. Information on climate-transportation-filing method. Send $1.00, Inter-American Land Development Service, 2425—231 Street, Torrance, Calif.

DEVELOPMENT Adjoining Lake Greenwood. Homesites $235.00. Only $8.75 down and $8.75 monthly. Bob Hollingsworth, Box 824, Greenwood, South Carolina.

SAVE, Buy direct from government. Land, buildings, islands. Listings $1.00. Bureau, Box A-213, East Hartford 8, Conn.

SELLING Pennsylvania village, 104 houses. Industry wanted. Perry, Breirhill, Penna.

20 TREES, SHRUBS, ROOTS, HERBS

GINSENG, Goldenseal roots bring $1.50-$12.00 pound. Full information. F. G. Collins, Viola, Iowa.

21 POULTRY & SUPPLIES

RAISE pheasants on $100 week plan. Little capital and space can make you independent. Free details. Great Central System, Columbus 6, Kansas.

22 PROFITABLE OCCUPATIONS

"HOW to Make Money With Home Workshop" describes amazing methods used by hundreds of successful craftsmen. Tells what to make. How to sell workshop output spare time. Write at once for details. Craftsman, 115B5 Worth St. NYC.

$5000 FROM Half Acre growing Ginseng crop bought. Particulars 10c. Associated Growers, Sperling, Manitoba.

FREE! "301 Profitable Small Businesses!" Amazing shoestring plans! Work Home! Start Sparetime! Deumant Surveys, Kenmore 23-S, New York.

BUY Wholesale thousands nationally advertised products at big discount. Free "Wholesale Plan." American Buyers, 628-T Linden, Buffalo, New York.

HOME Workers! Spare time—full time. Assemble luggage and cases with our complete illustrated step-by-step instructions. We sell your product—supply everything. Manufacturing representative needed in your area immediately. Unlimited profits possible. Investigate at our risk. Free details. Casecraft, 807-H5 Sunset, Los Angeles 12, Calif.

FREE Book "505 Odd, Successful Businesses." Work home! Expect "Odd"! Pacific—37C, Oceanside, Calif.

MAKE extra money. Address, mail postcards. Spare time every week. Write Box 14, Belmont, Mass.

DETECTIVES—Work home—Travel. Experience unnecessary. Detective Particulars free. Write, Wagoner, P-125 West 86th, New York 24.

COST Of Things Going Up faster than your income? You can make more full or part time as a Rawleigh Dealer. Write for full particulars. Rawleigh's, Dept. E-RR-PSC, Freeport, Illinois.

MAKE Money writing short paragraphs! No tedious study. I tell you what to write, where and how to sell; and supply list of editors buying from beginners. Many small checks add up quickly. Write to sell, right away. Send for free facts. Benson Barrett, 1751 Morse, Dept. C-86-E, Chicago 26.

FOREIGN Employment Construction Work. If interested in foreign projects with high pay, write Foreign Service Bureau, (Dept. P.S.), Metuchen, New Jersey.

"HOW To Make Money with a Camera". Send 25c to Photos, Box 526, National City, California.

MUSHROOMS grown boxes, barrels. Manureless process 50c. Spawn $1.00. Gordens, 553 William, Winnipeg, Manitoba.

EARN $40 weekly addressing envelopes. Instructions $1. Berckun, 2763 Linden, Knoxville, Tennessee.

CHRIST'S Coming is very near. Get proofs. Evangelism, 263, Duluth, Minn.

WANT A Diesel Job? New Opportunities to increase income. Higher Pay, More Money. We can help you Qualify. Tools. Shop method home training. Write today! Diesel, Tractor, Heavy Equipment Division, Interstate Training Service, Dept. B-2-E, Portland 13, Oregon.

MOST Complete list of U.S. construction jobs coast to coast. Top pay berths. No phonies. Latest dope tells who, what, where, when. Send $1.00. Money back guarantee. Dempster's Construction News, Bridgeport 33, Illniois.

WHOLESALE! 12,000 nationally famous products. 30-80% discounts! "Wholesale Trade Secrets" Catalog. Sensational business plans free. Derrom Company, 21-19 White, Paterson 23, New Jersey.

WHOLESALE! Complete Line Musical Instruments, Phonographs, Tape Recorders, Typewriters, Watches, Diamond Rings, Appliances, etc. Discounts to 75%! Send 50c (Refundable) for large catalog. Strauss Music Company, 25-15 Lafayette, Paterson 23, New Jersey.

WELDING Pays $$$. Learn easily at best equipped school in country. Nonprofit School with low cost training. G.I. approved. Write Hobart Trade School, Box P-552, Troy, Ohio.

OWN A Collection Agency, pays big. Franklin Credit, Roanoke 7, Virginia.

GROW Mushrooms, Cellar, shed, and outdoors. Spare, full time, year round We pay $3.50 lb. We paid Babbitt $4.165 in few weeks. Free Book. Washington Mushroom Ind., Dept. 101, 2954 Admiral Way, Seattle, Washington.

FREE Folio "Up to $45,000; Unlimited Vacations." No merchandise, equipment. Unknown! Work home—sparetime! Haylings—S14, Carlsbad, Calif.

GET Ahead in '55. Opportunities unlimited. Be your own boss in a profitable occupation. Send postcard for Free Details. Midwest, 622 Sanburnol, Mpls. 21, Minn.

START Spare time home business. Good earnings. Riehl Enterprises, 111 Peninsula Blvd., Valley Stream 6, N. Y.

23 BOOKS & MAGAZINES

SOCIALIST Books. Catalog, literature, Free. New York Labor News Company, Dept. F, 61 Cliff Street, New York 38, N.Y.

SPARETIME Profits Taking Subscriptions. All Magazines. Wholesale Catalog Free. Cassell Publishers, Westfield, N. J.

NEW—Used books 12—$1—Bargain list, samples, 20c. Persil, 436 N.Y. Ave., Brooklyn 25, N.Y.

A Must for all hobbyists. Only $1.00 for 1550 sources of supply; 309 categories. Valuable coupon. Hobby Homecraft Directory, Dept. 6, Sidney, Ohio.

EIGHT Used pocket novels $1.00. List for stamp. Trunkatt, Glenshaw, Penna.

BOOKHUNTERS! All Subjects. Send Wants! Jaher Book Service, 620-K East 178 Street, New York 57.

NATIONAL Geographic Magazines 1888-1952. Any issue. Periodical Service, Box 465-PS, Wilmington, Delaware.

BOOKS, Government surplus. Bargain prices. Free catalog listing 50 other free catalogs. Instructional, educational, vocational subjects. Millions of volumes, new and used. Books bought. Est. 1902. Long's College Book Co., Dept. PS, Columbus 1, Ohio.

UNUSUAL Imported books. Free catalogues. Transbooks, Box 22-PS, Brooklyn 26, New York.

BOOK Catalogue. 1000 Bargains, send 10c. Books Publishers, Amityville 2, N. Y.

FOOD $1.00 week, rent $5.00 year. Beat inflation, high taxes. Live rich on planned poverty. Booklet, "Freedom Way" tells how. Send $1.00. Guaranteed. Gulfstate, Rte. 2, Box 75, Panama City, Florida.

WEBSTER'S Illustrated Dictionary. The ideal ready reference—827 pages, profuse illustrations, 60,000 up-to-date definitions. Completely revised; self-pronouncing; synonyms and antonyms. English grammar; postal information; weights and measures. Cloth. A $4.50 value. Send only $1.98 to Popular Science, Dept. P555, 353 4th Ave., New York 10, N. Y.

24 HYPNOTISM

FREE Illustrated Hypnotism, Selfhypnosis. Catalogue. Write: Hypnotist, 1324 Wilshire, Hollywood 17P, California.

HYPNOTISM! Party Demonstrations. Neige Diehl, Post Office Box 2002, Seattle, Washington.

SELF Hypnosis Book induces sleep in 20 min. or money back. Builds success! $1.00. Mental Power, 2611-P Tilden, Los Angeles 64, Calif.

SELF-Hypnosis. Amazing book by N.Y. hypnologist guaranteed! $2.00. Skyhaven, Newfoundland 2, New Jersey.

LEARN Hypnosis! Mystify, command—Free details. Jowell, 4529 S.E. 26, Oklahoma City.

BECOME Master Hypnotist. Details 10c. Hypnomaster, 833 Sunnyside, Chicago 40, Illinois.

BECOME Hypnotist, Mindreader, Superman. Write today! Success School, Sparta 1, Michigan.

MASTER Hypnotism in 25 Lessons. Most Perfect, complete, easily learned and comprehensive course. Money back guarantee $1.00 postpaid. Books Publishers, Amityville 2, New York.

STUDY Hypnotism! Amazing illustrated lessons. Big 280-page treatise jam-packed with fascinating information. Simple understandable language you'll enjoy. Full price only $2.95 postpaid—or C.O.D. Plus Postage. Satisfaction or refund guaranteed. Order "Hypnotism" today. Nelson Company, 210 South Clinton, Dept. 2EV-1, Chicago 6.

MECHANICAL Hypnotist pocket-size trance causing invention works simply, quickly. Hypnotic secrets included. $1.98. Clik, GPO Box 1312B, New York 1.

HYPNOTIZE Successfully! Learn easy, fast, modern methods—including secret nerve pressure technique (Guaranteed harmless)! Complete illustrated course $1.00. H. Fowler, 1252 Dahlia Lane, Wantagh, N. Y.

EX-Ray mind. Hypnotize, one glance. Guaranteed. $3.00. Wamsteker, Ottery, Cape, South Africa.

AMERICA'S Most Complete Autohypnosis course, $2.00. Catalogs free. Speedy Mailers, Appalachia, Virginia.

24A GAMES & ENTERTAINMENT

NEW! Ultraviolet kaleidoscope. Glowing, neon-like colors! Postpaid $1.00. Spacescope, 144 Mansfield, New Haven, Conn.

25 MAGIC TRICKS, PUZZLES, ETC.

500 TRICKS. Douglas famous 120-page Catalog, only 10c. Fastest service to magicians for 30 years. Send 10c today. Douglas Magicland, Dept. 2, Dallas, Texas.

BEST magic. Joker's novelties. Lower prices. Catalog 10c. Top Hat, Evanston 13, Illinois.

MAGICIANS, Gamblers, winning exposed. Pinball, Card, Dice. 10c catalog. Book, Box 671, St. Louis 1, Mo.

Copyrighted material

FAITHFUL Lowdown Indian Magic: $2.50 C.O.D.; Robertson, 52 Berkeley St., Boston, Mass.

OBTAIN Anyone's true age, birth date, telephone number in 30 seconds! Astounding new novelty gives hundred percent accurate information every time, or money back. Order today! Only $1.00. Tell-A-Date, Box 37212 Station G, Los Angeles, Calif.

FREE Magic Vanisher With 1955 Large Professional Catalogue 25c. Maj Magic, 23 Friends, Westbury, N.Y.

THREE New—large, intriguing plastic puzzles only $1.00. Satisfaction guaranteed. Harpco, 462 Woodward Ave., Brooklyn 37, New York.

FREE Deck trick cards with catalog 50c. 1746-PS Market, Philadelphia 3.

"VENTRILLO" Professional Voice Thrower and Catalog 25c! Box 971-PS, Philadelphia.

SENSATIONAL Magician's Wand (Vanishes Handkerchief!) 25c, catalog included. Box 1352-PS, Philadelphia.

DOLLAR Magic Set Free with Catalog 25c. 4462-PS Germantown, Philadelphia.

26 COINS & CURRENCY

GET Profit and Pleasure in collecting old coins. Send 10c for 56-page illustrated coin catalog. You'll be delighted with it. Send for it now. B. Max Mehl, 374 Mehl Building, Fort Worth, Texas. Largest rare coin establishment in U. S. Established 55 years.

FREE! Foreign coin banknote and Coin Collectors' Illustrated Catalog to approval service applicants. Send 3c postage. Tatham Coin Co., Springfield-50, Mass.

OLD Money wanted. Do you know that Coin Collectors pay up to $100.00 for certain U.S. Cents? And high premiums for all rare coins? We buy all kinds. Send 4c for Large Coin Folder. May mean much profit to you. Numismatic Co., Dept. 30, Fort Worth, Texas.

SCARCE Uncirculated mint coins—1940 Lincoln cents PDS Set 25c. 1940 Jefferson nickels PDS Set 85c. 1940 Liberty dimes PDS Set $1.00. Complete Sets (9 coins) all mints $2.00. United Coin, 5415 Netherland, Riverdale, N. Y.

30 DIFFERENT Foreign coins—$1.00. Valley, Box 66, McAllen, Texas.

PAY $40.00 Certain Lincoln Cents. Indianheads $60.00. 1901-S Quarters $30.00-$250.00. Hundreds of others $5.00-$3,000.00. Catalogue 25c. Illustrated Catalogue 50c. Three Large Illustrated Complete Guarantee Buying-Selling Catalogues $1.00. Worthycoin Corporation (D-417), Boston 8, Mass.

MORGAN Dollars; 1878-79-80-81-82 uncirculated $2.00 ea. Illustrated coin catalogue 25c. Shultz, Salt Lake 10, Utah.

COIN Magazine, 100 pages. Sample 30c. Numismatic, 7320 Milwaukee, Chicago 31.

INDIAN Cent with bargain lists 10c. Hutchinson, 3463 "I" Street, Philadelphia 34, Penna.

SIX Different Indian Head cents for 25c. Twenty different Indian Head cents for $1.00. Eight different Liberty Head nickels $1.00. Five different Canadian large cents 50c. New 1955 Coin List free. No approvals. Bryson Stamp Company, 612 White, Toledo 5, Ohio.

1955 PROOF Set $3.00. Giant Bargain Catalogue 35c; Retail Guidebook $1.75. Premium Handbook $1.00. Top prices paid all rare coins. Bebee's, 4514 North 30th, Omaha 11, Nebraska.

WE Buy Indianhead pennies, all dates, catalogue containing complete price list, 25c. Robards House, Box 169-PS, Sebree, Kentucky.

WANTED All types U.S. Coins, Confederate Currency. Send 25c for Complete Price Catalogue plus two foreign coins. Longino, 611 E. Columbia Ave., College Park, Ga.

CANADIAN Coin collectors. Complete folder, Canadian Small Cents, 1920-54 $9.00. Winnipeg Service Supply, 279 Manitoba Ave., Winnipeg, Manitoba, Canada.

50,000 COINS, medals, bills. Lists free. Collectors Magazine 10c. Nagy, 8-A South 18th, Philadelphia 3, Penna.

FOREIGN Coins, 25 different $1.00. Webb, 2200 Quintara, San Francisco 16, California.

28 STAMP COLLECTING

GIANT Stamps! Valuable collection of the biggest stamps on earth! Includes mammoth diamond-shaped airmail; huge triangle; gigantic animal and ship stamps; many others. Extra: Set of 5 midget stamps plus genuine wooden nickel. All for only 10c covering mailing expenses. Approvals included. Mystic Stamp Company, Camden 14, New York.

FREE—Complete set of Famous Americans, Flags, Parks and Presidentials to approval buyers. Send 5c for 15 of the above stamps plus full particulars. Triboro Stamp Company, 145 Nassau Street, Dept. 205, New York 38, N. Y.

WORLDWIDE. 50 all different, absolutely free, just to introduce our incomparable approvals. Kent Stamp Company, GPO Box 87, Brooklyn, New York.

200 DIFFERENT, including Roosevelt triangle, 10c to approval applicants. S. Avalon Stamp Co., Springfield, Mass.

"WOW! 153 All Different Germany, 10c" Zeppelins, Semi-Postals, Airmails, High Values. Big Bargain lists and approvals included. Jamestown Stamp Jamestown 509, New York.

TWO $5.00 US stamps plus 20 different 10c with US approvals. Irwin Stamp Co., Box 1109, Brooklyn 30, New York.

WEIRD Diamond Shape Coffee Stamps, lovely Flower Triangle. First American Big Commemorative, Greenland Idol Dancer, etc. Free with approvals. Capital Stamps, Little Rock 10, Arkansas.

AMAZING Offer! 200 U.S. stamps—including commemoratives, airmails, high denominations to $1.00—only 10c to Approval Applicants!! Illustrated Bargain Lists free. Mystic Stamp Co., Dept. 55, Camden, New York.

FABULOUS Collection—Large U.S. Commemoratives. Only 10c. Approvals, Raymax, 39-X Maiden Lane, NYC 38.

300 DIFF. World wide 25c. Plus surprise packet. Mammoth packet list free. Econopackets, Box 168, Riverside 22, Calif.

FREE Stamp Collection:—100 different stamps from Europe, Africa, Asia, Scandinavia, Balkans, etc. 3c to approval applicants. Tatham Stamp Co., Springfield 50, Massachusetts.

FREE U.S. stamps. 1943 Occupied Nations Flag, Airmails, Commemoratives, included in collection of 25 different U.S. plus $5.00 stamp. Everything for 10c mailing charge. Approvals. Willett Company, Box 511-S, Port Chester, N. Y.

FIRST U. N. Set. Among World's Prettiest. Only 10c. Approvals. Welles, Box 1246-V, New York City 8.

225 STAMPS For only 10c! This mammoth value includes Airmails, Pictorials; stamps from strange Countries catalogue up to 25c each! Also Approvals. Mystic Stamp Company, Camden 55, N. Y.

FREE Animals, birds, triangles, flowers, ships, locomotives, kings, dictators, multicolored, historical, geographical, musical, battles, giants, midgets and over 100 others. Fascinating story approvals. Send 10c handling, please. Canada Stamp Co., 19319 Main St., Niagara Falls, N. Y.

ALBUM! Capacity over 1000 stamps! Only 10c. Stampmart, Hartford 1, Conn.

BARGAIN Hunters' Attention! Free stamp magazine. 1000 interesting stamps for your approval inspection. Completely catalogued, substantially reduced. Free tongs and hinges with purchase. Niagara Stamp Co., St. Catharines 32, Ontario.

100 DIFF. Latin America 25c. Packet list Free. Econopackets, Box 168, Riverside 22, Calif.

FREE 105 British Colonials, pictorials, Mauritius, Tanganyika, Pakistan, Nigeria, Rhodesia, Singapore. Fascinating story approvals. Send 10c handling, please. Canada Stamp Co., 19219 Main St., Niagara Falls, N. Y.

COLLECT U.S. Stamps for pleasure and profit. 72 page catalogue free. Stone, 192-S Washington, Boston 8, Mass.

JAPAN — 100 Different — chockfull of Commemoratives, high values, pictorials. Exceptional value—just 10c. Appealing approvals accompany. Viking, 11-P Northern Blvd., Great Neck, N. Y.

SOMETHING New—Something different. Try our books of 1,000 different stamps. Mostly 1c and 2c all catalogued for your convenience. Big discounts. Modern Stamp Co., Dept. B-3, Ferrysburg, Mich.

FREE — Helicopters, birds, triangles, others. Approvals. Penny's Stamps, Box 18B, Talmage Rd., Ukiah, Calif.

300 DIFFERENT given free with approvals. Postage 3c. Windsor Stamps, 8834 S. Cornell Ave., Chicago 17.

100 DIFFERENT U.S.—50c. Approvals. Utechts, 1143A North Keeler, Chicago 51.

FREE sample stamp newspaper, information on collecting, special lists. Approvals. Littleton Stamp Co., Littleton A2, New Hampshire.

TERRIFIC Triangles—Frightful Fish, Christ, Volcanoes—African Flowers, Giant 50 year Tasmania, "Pearl Harbor" Philippines, Dead Lands, etc. 3c to approval buyers. Potomac Stamp Shop, Washington 15, D. C.

BENELUX Lands, 107 different, from Flanders, Brittany, etc. with animals, airmail, coronation, triangle, other topicals, only 10c with approvals. Hathaway, Box 145-S, Garden City, L.I., N.Y.

BEAUTIFUL Triangles, 11 different. A 50c value for 10c. Low priced approvals included. Wolverine Stamp Service, Dept. B-27, Fruitport, Mich.

GREATEST Free Offer—Croatia Exile Government Air Set; gorgeous birds, natural colored triangles. Also albums, supplies. All to our Approval Buyers. Bell Stamp Service, Dept. W-5, Bell, Calif.

GIANT Stamp Zoo free! Fifteen different including rhinoceros, elephant, snake, tiger, zabu, kangaroo, koalabear, emu, kookabura, bull, horse—with approvals. Send 10c for postage and handling. Niagara Stamp Co., St. Catharines 52, Ontario.

GIGANTIC Collection Free—Includes Triangles—Early United States—Animals — Commemoratives — British Colonies — High Value Pictorials, etc. Complete Collection plus Big Illustrated Magazine all free. Send 5c for postage. Gray Stamp Company, Dept. PR, Toronto, Canada.

GIANT and midget triangles, set tiny soldier, sailor stamps. Greenland, colorful flowers. Cigar beauty, Latvia airman, New York Fair, etc. 3c. Approvals. Seabrook, Dept. 15, Washington 11, D. C.

SAVE! 22 different sets plus exciting pictorial packet and approvals. Only 25c. Chase, Box 771, North Adams, Mass.

BIG 3 Square foot Stamp Map—locates countries! Identifies strange stamps! Wealth of facts! Regularly 25c—but to you with 30 different stamp bonus and informative "How to Collect Stamps" only 10c! Approvals. Goliath Co., Bethlehem U2, New Hampshire.

LOOKING For bargains? Try our 1c and 2c quality approvals in books of 1,000. Also U.S. Clark Stamp Co., Dept. B-46, Muskegon Heights, Mich.

FREE—Diamonds, triangles, showing orchids, fishes, coffee beans. Approvals. Atlantic, Box 361P, Metedeconk, N. J.

FREE! Large New profusely illustrated catalog of United States postage issues complete; 64-page, four-color Stamp Collectors' Guide; other unusual offers. Write today! Harrisco, 1025 Transit Bldg., Boston 17, Mass.

PENNY Approvals, write today. James Vance, Box 342S, Newark, Ohio.

25 DIFFERENT Luxembourg 10 cents. Approvals. Waha Stamps, 178 North 17th Street, East Orange, N.J.

FREE—Pope triangle, 25 others different. Approvals. Ellarsons, 611 Centre, Dallas 8, Texas.

WE Buy stamp collections, price list 25c. New-Way Stamp, Lawrence, (5) Mass.

FREE Packet of Triangles, Penny Approvals. William Hicks, 57 McLean, Wilkes-Barre, Penna.

NOW Try us! For the only truly bargain priced penny approvals.—It's Riviera Stamps, 125 West Haley, Santa Barbara, California.

PORTUGAL Collection 22 different 3c with approvals! Thrifty Company, Silver Spring, Maryland.

Copyrighted material

ARMENIA Pictorials. Value 65c. Free with Approvals. Exotic, Box 755, Miami Beach 39, Fla.

12,863 WORLDWIDE Stamp grabags 10c each. Monjar, Fairmount, Cincinnati 14, Ohio.

VALUES! 50 Different Czechoslovakia plus 3 complete sets Germany, Belgium. Catalog over $4.11, 10c. Approvals. Kingsway Stamps, Dept. 55, 268 Kingshighway, Brooklyn, N. Y.

LOOKING for better U.S. Approvals??? Write. New-Way Stamp, Lawrence, Mass.

14,000 DIFFERENT — Yours on our streamlined, systematic Club plan for only 50c weekly. Big shipment every two weeks. Details free. Sjoquist, Box 217, Valley Stream 70, New York.

50,000 STAMP grab-bags, 25c each. Anderson, Box 1, Reading, Pennsylvania.

100 JAPAN 10c. All different with approvals. Gould's, Box 631, San Francisco 1, California.

ECONOMICAL ½-1-2c Approvals. 22,000 varieties available. Dresel, Box 270-T, New York 25, New York.

FREE Sample—Interesting, informative. Illustrated! National Stamp News, Anderson, South Carolina.

OVER 200 Different better stamps. Beautiful triangle set, pictorials, 10c. Approvals. Greene, 4301 46 Street, Long Island City 4, N.Y.

FREE—British, Spanish, French Colonial collection. Approvals. Pleasure Stamps, 1865A—52nd, Brooklyn 4, N. Y.

OLD scarce U. S. seconds on approval. Slightly defective, bargain prices. Hearnfield, Clintonhill Station, Newark 8, N. J.

U.S. 40 different 10c. 40 different Commemoratives 25c. Both 30c. Seidenberg, Appleton, Wisc.

50 DIFFERENT Bulgaria 10c! Approvals. Ensign Stamp Company, Dept. S, Berdan Avenue, Paterson 2, New Jersey.

PICTORIAL Packet—Triangles, Bi-Colors, etc.—10c! Approvals, Cole, 43-G Rinewalt, Buffalo 21, N.Y.

WORLD Approvals from 33,000 collection. Churr, Box 117, Williamsville 21, N. Y.

FREE—Valuable U.S.A.! (1) Scarce genuine stamp picturing first U.S.A., issued in 1847! (2) Big collection 30 all-different U.S.; ancient 19th century, valuable $5 stamp, etc. (3) Packet gorgeous Commemoratives. (4) Large illustrated U.S. catalog; 64-page, four-color Collectors' Guide; other unusual offers. Everything for only 10c covering mailing costs! Harrisco, 1033 Transit Bldg., Boston 17, Mass.

UNITED States Commemoratives, 36 Diff. 10c with Bargain Lists. Hudson's, Box 556, Pinedale, Calif.

ZOUNDS! Exciting "Strange Countries" Packet—Free with approvals! Saxon, Vista, Calif.

UNBELIEVABLE! Africa, Latin America, Asia, set triangles, plus 100 different. 10c with approvals. Bennett, Candor 2, New York.

FREE Premium U.S. approval applicants. Chase's, 24 Salem St., North Andover, Mass.

SUPERIOR U.S. Collection, 37 different free to approval applicants sending 10c handling. White, 516-W Avenue L, Brooklyn 30, New York.

UNUSUAL Souvenir Sheet Russia 1937 10c with approvals. Kingman, 30A Empire, Yonkers 4, N.Y.

200 DIFFERENT, plus Macau, Rhodesia, Mauritius, etc. Only 10c to approval applicants. Evden, Box 128, Valley Stream 42, New York.

WONDERFUL Offer Seven complete mint sets only 10c with approvals. Reich (S26), 1033 Lawrence, Chicago 40.

UNITED Nations cover free to applicants of U.S. or British Colonial approvals. Alan A. Taylor, Skyland, N. C.

100 DIFFERENT Spain 25c. Penny approvals included. Reed, Box 980, Chicago 90, Illinois.

MINT U.S. approvals. Russell Patrick, 5550 East 42nd, Indianapolis 26, Indiana.

PENNY Approvals jammed with Bargains. For better values, try Putnam Stamp Company, Mahopac, New York.

GERMANY B257-69, Warplanes, Machinegunners, Assaultboats, given "Approval Buyers." William Deems, Ravenswood, W. Va.

ESTONIA Carrier pigeon set free. Approvals. Canyon Stamps, Box 808, San Fernando, California.

U.S.—75 Different, 10c. Approvals. Farmer, 4913 Rosewood, Los Angeles 4, Calif.

FREE U.S. illustrated bargain catalogue. Rothberg, 53 Bromfield, Boston 8-P, Mass.

49 CANADA Different 10c! Approvals! Moldenki, Box 8, Hopewell Junction, N.Y.

CIPEX souvenir sheet plus 25 different U.S., 10c. Approvals accompany. Village Stamps, 90-39B 214 Street, Queens Village 28, New York.

50 DIFFERENT Argentine 10c. Approvals. Reuter, 611D W. 40th Pl., Los Angeles 37.

EARLY U.S.! #26 issued 1857 plus 20 other nineteenth century 25c to approval applicants. AAA Stamp Company, Arcade Building, St. Louis 1, Missouri.

MONACO Nudes—10c with approvals. Royal Stamp Company, Tamaqua 2, Penna.

STAMP Bonanza with bargain approvals, $1.00. Morrison, 1625 East, Redding, Calif.

200 BRITISH Colonies, plus 100 worldwide, $1.00. Asnacomet, Box 284, Hubbardston, Mass.

U.S. Revenues on approval. Eljay, 286S Times Square Station, N. Y. 36, N. Y.

SAVE! Stamps ½ catalog. Heirty, 1656 Olive Avenue, Chicago, Illinois.

CORONATIONS. 10 different only 10c with approvals. Seminole Stamps, Box 1138-S, Coral Gables 34, Florida.

ZEPPELIN Issue free. (Postage appreciated.) Variety Stamps, 57-Z Circuit, Newton Highlands 61, Mass.

CANADA—Scott 311/343—32 stamps—$1.50, other sets. Write for price list and/or approvals. South Shore Stamp Company, 90 Oak Street, Lynbrook, N. Y.

U.S. Approvals, mint, used! "Square Deal Teall", 661 Beach, Rochester 12, N.Y.

RARE Nepals, plus other worldwide stamps, free to approval buyers. Conquistador, 2627M Troy Road, Schenectady 9, New York.

27 DISTANT Countries 10c. World stamps purchased. Bristol Stamps, Collinsville, Conn.

FREE—Valuable North America collection! Includes Greenland, Alaska, Confederate States Comm., Canada, Newfoundland. Plus—U.S.—ancient 19th century, gorgeous commemoratives, scarce Telegraph stamp. Many, many others! Send 10c for mailing expenses. Approvals. Kenmore, Milford E-598, N. H.

409 DIFF. 1st class stamps $3. Free: Finnish collection. No COD. Kjellgren Co., 17 Grevgat, Stockholm, Sweden.

U.S. Commemoratives, 100 mixed 25c. Approvals. Morris, 2012 15th, Lubbock, Texas.

FREE U.S. 34 different with superior approvals. Sparta, Box 1082, Rochester 3, New York.

DOLLARS in the mail for you! Put your ad here and watch orders fill your mailbox. For as little as $9.00 you can advertise your product or service in the classified opportunities columns of Popular Science Monthly. The July issue closes on May 25. Write today for order blank. O. K. Kelly, Classified Adv. Mgr., Dept. 55, Popular Science Monthly, 353 Fourth Ave., New York 10, N. Y.

29 ANTIQUES, RELICS & INDIAN GOODS

4 FINE Arrowheads $1.00. Spearhead $1.00. List free. Lear's, Glenwood, Ark.

ARROWS: Thirty, assorted colors $5.00; ten $2.00. Book-Relic Catalog 25c. Tilton Relics, Topeka 10, Kansas.

30 MINERALS & PRECIOUS STONES

ATOMIC Trinitite! Send 25c for actual radioactive atomic blast specimen and information on prospecting for tungsten, uranium, mercury with ultra-violet Mineralite, Dept. PS4, Ultra-Violet Products, Inc., South Pasadena, California.

BEAUTIFUL Large color chart of gems plus free offer $1.00. Mueller's, 1000 E. Camelback Road, Phoenix, Arizona.

SPECIAL Tumbled gems 3 oz. $1.25 includes tax and postage. Excellent quality. Dixie Rock Shop, 3245 Prospect Ave., So. San Gabriel, Calif.

"GENUINE" red Arizona Rubies (Garnets). Send quarter for packet. Bitner's, Box 1025-C, Scottsdale, Arizona.

TEN beautiful highly polished genuine gems. Only $1.00. Baroque shapes. O'Brien's, 1116B Wilcox, Hollywood 38, Calif.

GEMSTONES, Mineral specimens. Geiger Counters, uranium samples. Every variety. Lowest prices. Free booklet. Plummer's, 4720 Point Loma Avenue, San Diego 7, Calif.

SAPPHIRE—tourmaline—topaz—garnet—peridot. 5 uncut gem specimens, $1.00. O'Briens, 1116B Wilcox, Hollywood 38, Cal.

FACTS for rockhound trips, uranium, prospecting, lapidary hobbyists, every month; 12 issues, $1.00. "National Prospectors Gazette", Bellflower 51, California.

GEMCUTTING. Silvercraft authority. Illustrated magazine tells how. Cut rocks, make jewelry. 150 ads illustrating equipment, offering gems for collectors, cutters. Postal brings literature. Lapidary Journal, Drawer D, Del Mar, Calif.

31 HOBBIES, COLLECTIONS

INVENTING can be an interesting and profitable hobby. Write for complete particulars. Institute of American Inventors, Dept. 30-E, 631-E St., N. W., Washington 6, D. C.

NAZI Emblem sample and catalog 25c; 37 different American emblems $1.00. Hobbyguild, 550A Fifth Avenue, New York.

UNUSUAL Hobby: Authentic Army patches, insignias, ribbons, enameled crests, Navy rates, 50 assorted for $1.00. Rex Military, Dept. D., 1186 Broadway, N.Y.C.

WANTED — Cigarette, tobacco cards. Write Charles Bray, East Bangor, Penna.

LEARN Fascinating hobbies. 3 issues of Club Magazine 25c. Hobbies, Box 88, Redwood City, California.

50 ARMY Insignia $1. Insignia Mart, 703B Broadway, New York 3, N. Y.

CIRCUS Wagons—Railroad cars. Enclose stamp. Box 181, Omaha 7, Neb.

BRASIL Exports:—Attractive propaganda matchbooks, pencils, cigarette covers, hotel labels 25 for $1.00. Remailed airmail $1.00. P.O.B. 155—Copacabana—Rio de Janeiro—Brasil.

MILITARY Miniatures: U.S. Marines, American Revolution, Civil War, Custer's Cavalry. Illustrated Catalog 25c. Bussler Miniatures, Dept. E, 59 Russell Park, Quincy 69, Mass.

NAZI Medals, ribbons, flags, daggers. Big packet $1.00. Illustrated lists. Medcrafts, 1923 34th St. S.W., Calgary 3, Canada.

UNUSED matchbook covers—100 different $1.00—36 page catalog 25c—matchcover album $3.00. Charles Edelman, 1311P East 84, Cleveland 3, Ohio.

MAY Special 10% discount items 323-697. 5x5 3D. Roses, birds, harlaquins, $1.00 pair (regularly $1.50). Postage extra. Hylandale Crafts, Rockland, Wisconsin.

HOBBYISTS Everywhere! Converse with your fellow hobbyists through tape and disc recordings. Join the United Recording Club, 2516 So. Austin Blvd., Chicago. Information Free.

FREE! Leathercraft catalog. Do It Yourself! Tandy Leather, Box 397BH, Tulsa, Okla.

32 PHOTO FINISHING, PHOTOCOPIES, ETC.

PARTICULAR? Custom Finishing Guaranteed. 8 Jumbos 35c. 12—50c. Special! 35mm 36 exposures $1.10. Free Mailer. Flash-Foto, Box 36H, Brooklyn 4, N. Y.

12 EXPOSURE rolls 39c, jumbo prints. Guaranteed work, one day service. Lincoln Studios, Dept. L, Box 13, Lincoln, Nebr.

FREE Film! Write for mailers. Vets, Box 37PS, Montalvo, California.

ENLARGEMENTS, Highest quality, two 8x10's or three 5x7's, $1.00 cash. J. R. Eilken, Box 29-S, Secaucus, N. J.

Copyrighted material

4x6 OR 3¼x4½ oversize glossy velox prints 8 exposures 40c, 12 exposure 60c, 16 exposure 80c. Hagner Photo Service, 1318 West Columbia Avenue, Philadelphia 22, Pa.

SURPRISE gift with first roll developed. 8 jumbo superpak album prints or 16 contact prints 40c. 12 exposure roll 50c. Certificate for 3—5x7 enlargements. Owl Photo Co., Weatherford, Okla.

8x10 ENLARGEMENT From any photo or film. Double weight paper 65c. Two $1.00. Original returned. Hammond Company, 18½ North Main, Hutchinson, Kans.

FREE Beautiful 5 x 7 Redwood Logging print with each develop and print order. Quality Jumbo prints 6c ea. Satisfaction guaranteed. P. O. Box 114, Eureka, Calif.

SPECIAL Introductory offer 8 Jumbos 25c, 12-35c. Western Photo, PS-55, Box 298, San Francisco 1, Calif.

FREE Roll of film plus money back if not delighted with Delco's oversize prints in albums. Special! 8 or 12 exposure roll 39c with this ad. Delco, Box 362D, Upper Darby, Penna.

SPECIAL 10 reprints 25c, 50—$1.00. Dick's Photo, Louisville 12, Kentucky.

33 MOTION PICTURES, SLIDES, SOUND EQUIPMENT

MOVIE Camera Film: 8 mm roll $1.50, 16mm 100' $3.00. Free processing. Better Films. 742 New Lots. Brooklyn. N. Y.

TAPE Recorders, Tapes. Accessories. Unusual Values. Dressner, Box 66, Peter Stuyvesant Station, New York 9.

SAVE 50%! Guaranteed-fresh color, b&w movie film! 8mm, 16mm. Free catalog! Eso-H, 47th Holly, Kansas City 12, Mo.

8 & 16MM Professional National Parks Movies in Kodachrome. List Free. Ideal Service Supply, 4644-S Geary, San Francisco 18, Calif..

JUST Out! Free movie bargain bulletins. Tremendous savings—Buy, sell, exchange, rent features and shorts. Specify 8mm-16mm silent or sound. Dept. F7, Peerless Camera, 415 Lexington Avenue, New York 17, N. Y.

5,000 8-16MM. Silent-Sound Films. International, 2120 Strauss, Brooklyn 12.

HUGE listings, color, B&W sports, comedies, travel, musicals, etc. Catalog 15c. Turke Films, 423 S. Lincoln, Hinsdale 1, Illinois.

TAPE recorders accessories. Best buys. Boynton Studio, 10P Pennsylvania, Yonkers, New York.

34 CAMERAS, PHOTO SUPPLIES

REVERE P85 DeLuxe projector, case, latest, Spotless, $88.38. Screen $9.89. 10c brings catalogue of 1001 amazing values. Dealer's Mart, 54 Beverly Road, New Rochelle, N. Y.

BASS Says: Quality Cameras Since 1910. When in Chicago visit the Camera Cross Roads of the World . . or write us for your favorite equipment, new or used. Satisfaction Guaranteed. Bass Camera Co., Dept. AG, 179 W. Madison Street, Chicago 2, Illinois.

DISCOUNTS to 40%—cameras, projectors, tape recorders, lenses. Write for individual quotations, no catalogs. Classified Camera E, 2375 E. 65 St., Brooklyn, New York.

BUY wholesale nationally advertised cameras, photo supplies, thousands other products at big discount. Free "Wholesale Plan." American Buyer's, 629-TT Linden, Buffalo 16, N. Y.

20 TO 50% Discount everything, Photographic, giftware. Catalogue 10c. Dart, 3812F Atlantic Avenue, Brooklyn 24, N. Y.

GE PR-1 Memory meters, $23.97 . . . Weston Master II's, $21.47. Factory boxed. Free bargain catalogue. Dealer's Mart, 54 Beverly Rd., New Rochelle, N. Y.

POWERFUL telephoto lenses for Kodak, Ansco, Argus, Bolsey cameras with mounting instructions $2.00, Postpaid. B. Jamer, Manorville, New York.

EFFICIENT—Inexpensive Repair Service. All cameras, movie cameras, binoculars. Free estimate. Modern Technical Supply, 55-PS-West 42nd Street, New York 36.

FREE! Free! Free! Central Camera Co., Photographic Headquarters since 1899, saves you money on all photographic equipment. Send for Central Camera Co.'s Free Photographic Bargain List today: Central Camera Co., Dept. 5-C, 230 S. Wabash, Chicago 4, Ill.

BUY Wholesale photo equipment, appliances, typewriters, tremendous discounts. Argus C-3 Camera outfit $48.75. Mansfield Action editors 40% off. Free Catalog. Camera Shoppe, Box 601-A4, Mt. Vernon, New York.

"PHOTO Market Guide." Send Only $2.00. Truman Bastian, Sunbury, Penna.

LATEST Zeiss Contaflex, f2.8 CZT, Spotless, $129.66. Zeiss Contessa, f2.8 CZT, Flawless, $106.33. Free catalogue. 1001 bargains. Dealer's Mart, 54 Beverly Rd., New Rochelle, N. Y.

35 MUSIC, SONG WRITERS & RECORDS

WANTED! Poems for musical settings. Write Songwriters' Service, Clifton, N. J.

POEMS Wanted for musical setting. Send poems. Free Examination. Five Star Music Masters, 646 Beacon Bldg., Boston, Massachusetts.

SONGWRITERS! Protect your poems and songs! Don't mail anywhere! Write for safe procedure! Song Service, 333 W. 56th, Dept. P.S., New York 19, N.Y.

FREE Records of your song—Your words—My Melody. Free information. Johnny Mack's Melody Mart, 1094 West 39th Street, Dept. K, Los Angeles 37.

POEMS Wanted for musical setting. Send poems. Free examination. Crown Music Company, 1472-P Broadway, New York City 36.

POEMS needed for new songs. Send poems for free examination, details. Immediate consideration. Songcrafters, 2724 Arcade Station, Nashville, Tenn.

SONGWRITERS: Large recording company may record your song. National sales and promotion if selected. No Charge for Melodies. Send song material to Music Makers, Dept. G-9, Box 2507, Hollywood, California.

POEMS—Urgently needed to set to music! Write clever poems, catchy rhymes. Achieve Fame. Money in popular music field! Send sample poems. Free evaluation. TinPan Alley, 1650 Broadway (Dept. L), New York 19.

ACCORDIONS—Buy direct from importer—save 50% and more. Five days free trial; lifetime guarantee. Trade-ins accepted. Big color catalog free. Write today. Accordion Manufacturers & Wholesalers Outlet, Dept. 55-P, 2003 West Chicago Ave., Chicago 22, Illinois.

DIAMOND Needles $9.95, Sapphires 98c. Guaranteed retipping service (free literature). Stylusco, Box 322(P), Mt. Vernon, N. Y.

WHOLESALE! Complete Line Musical Instruments, Phonographs, Tape Recorders, Typewriters, Watches, Diamond Rings, Appliances, etc. Discounts to 75%! Send 50c (Refundable) for large catalog. Strauss Music Company, 25-13 Lafayette, Paterson 23, New Jersey.

SONGWRITERS! Send poems, songs. Music Service, 243 West 72nd St., PS, New York 23.

SONGS Into $$$$$$$$$$ — Share $29,785,899.00 each year for new songwriters, songpoets. Songs composed, published, promoted by largest firm. Information, appraisal Free. Postcard or copy to Nordyke Publishing Co., 7070 Hollywood Blvd., Hollywood 28PS, Calif.

POPULAR Songs. How to write and sell them. Write for free booklet Successful Songwriting. Gateway Songs, Box 2470, Hollywood 28, California.

PHONOGRAPH Records Cheap. Catalogue. Paramount, S-313 East Market, Wilkes-Barre, Pa.

RETIRED, Church organist composes beautiful music to good words. Reginald Belcher Box 354, Morristown, New Jersey.

1955 ACCORDIONS — Wholesale. Free catalog. American Accordion Center, PS-5, 5329 Belmont, Chicago.

36 RADIO, TELEVISION, SUPPLIES & EQUIPMENT

MAKE Simple, Tubeless, Batteryless, Distance-Getting radio. Genuine Melomite crystal, Detector, Illustrated instructions. 50c postpaid. Allen, 427-PS5, Clinton, Mo.

TV Trade-in sets. Philco, R.C.A., Emerson, others. List available. 10"—$17. 12" to 17"—$20 up. Washtek Service Co., Dept. S. 1501 Boston Road, Bronx, N. Y.

BUILD 15 Radios—Progressive Radio "Edu-Kit" only $19.95 complete. Free Radio Tester, Electric Soldering Iron. No experience required. 30-day unconditional money-back guarantee. Order direct or send for free descriptive literature—no obligation. Valuable Radio & TV Repair Guide sent on request—no charge, no obligation. Progressive "Edu-Kit" Inc., Rm. 29-A, Progressive Bldg., 497 Union Ave., Brooklyn 11, N. Y.

PERFECT TV pictures, UHF-VHF, all channels, all directions without motors. Send for Free catalog on Motorless Directronic Antenna. Gives full details on Directronic, other radio-TV bargains. National Electronics, Dept. S-5, 6608 Euclid, Cleveland 3, Ohio.

TRANSISTOR Radio kit—brand new—includes junction transistor, earphones, crystal diode, tuning capacitor, battery, antenna coil, full instructions. Only $6.95; less phones $5.95. Satisfaction guaranteed. Trans Electronics, Box 168 Brevoort Station, Brooklyn, N.Y.

MINIATURE TV & Radio Antenna. Easily installed—Out of sight for good reception — Send $1.00 — Money refunded. Aerials, Box 696, Edgemont, Colorado.

ENJOY F-M Music from your television only $1.00. Tool and instructions. Box 247M, Pasadena, California.

GEIGER Counter and Metal Detector Kits. Inexpensive, Educational. Free Literature. Electronic Applications, Dept. A, 5024 Lee Hwy., Arlington 7, Va.

CRYSTAL Radio Experimenters. Write Leslie Hulet, 305 Hope, Lakewood, New Jersey.

LEARN new skills in electronics. Send for free Printed Circuit booklet. Tele-Diagnosis, 155 W. 72, N.Y.C.

HANDBOOK Plans "20 Crystal Sets" (SW record 5800 miles) 50c, including "Radiobuilder" magazine. Laboratories, 328-T Fuller, Redwood City, California.

BUILD Super crystal radios, Electrotomic crystal, detector, instructions 50c. Electrotomics, Box 98S, Dixon, Missouri.

HIGH Powered T.V. antennas for less than $2.00. For plans, plus tips to improve reception, send $1.00. T.V., Box 217, Longview, Washington.

TV Wonder dial automatically locates defective TV tubes in any set. Replace yourself. Save dollars. $2.00 postpaid. Wonder Dial, Box 133—East Providence, Rhode Island.

WALKIE-Talkie. Build wireless two-way portable radio-phone for less than $10.00 Springfield Enterprises, Box 54-A5, Springfield Gardens 13, New York.

STANDARD TV radio tubes. Terrific savings fully guaranteed. Send for price list. Allied Electronics, 74K Cortlandt Street, N.Y.C.

ENJOY Color television now! Non-inflammable multicolor screens for all black-white sets. Easily attached. Complete details, Free. Zingo Products, Johnstown 98, New York.

GUARANTEED Television, Radio tubes. Lowest prices ever. 6AU6, 6CB6, 50c; 12AU7, 6AG5, 6BC5, 6SN7GT 68c. Free price list contains bonus offer. Voltage boosters, picture tube rejuvenators, antenna kits, low prices. Crown Television, Box 194, Hicksville, New York.

HOW To Fix Your Own TV, Radio and Record Player. Limited supply—the most comprehensive, practical, clearly written book on home set repair ever printed! Covers all types of TV, home and car radios, record players, changers, tape and wire recorders. Includes all fundamentals on tubes, tools, soldering, more! Also covers Hi-Fi, Color TV, UHF, amplifiers, etc. So easy to follow, so revealingly illustrated, its simplicity will amaze you! Cloth-bound by Popular Science editors. Send only $2.98 to Popular Science, Dept. P555, 353 4th Ave., New York 10, N. Y.

Copyrighted material

START A Buying Service, buy wholesale thousands nationally advertised products. Make big profits selling at sizeable discounts. Postcard brings details. American Buyers', 627-T Linden, Buffalo, N. Y.

LEARN Sewing Machine Repair, Rent, Trade, Sell, Service. Operate "Booming" Home Shop like others do. Zigzag machines and supplies furnished. Free details. Taylor Service, Box 2126, San Bernardino, Calif.

RECAST old batteries into new. Latest achievements. Battery Laboratories, Minneapolis.

IMPORT-Export! Opportunity, profitable, world-wide, mail-order business from home, without capital; or travel abroad. Established World Trader ships instructions for no-risk examination. Experience unnecessary. Free details. Mellinger, E691, Los Angeles 24.

FIX typewriters. Free booklet describes our modern, inexpensive home-study course. Factory methods taught. Write Typewriter, Building 4, Tarentum, Penna.

WE Love our mailman—He leaves over $1,000.00 monthly in our rural mailbox. My college professor husband drafted a scientific home mailorder method. We bought a Texas ranch, live as we always wanted. Now we sell the "Ranch Mailorder Method." Operates anywhere. Inquire: Eveningshade Ranch, Helotes, Texas.

VENDING Machines—No selling. Operate a route of coin machines and earn amazing profits. 32-page Catalog Free! Parkway Machine Corporation, Dept. 73, 715 Ensor St., Baltimore 2, Maryland.

FREE! "301 Profitable Small Businesses!" Amazing shoestring plans! Work Home! Start Sparetime! Deumant Surveys, Kenmore, 23-S, New York.

$1,000 MONTHLY possible in collection agency business. Free details. Write Cole Associates, Syracuse 2, New York.

GROW Orchids at home—profitable—fascinating. Year 'round, Maine to California. No Greenhouse. Gorgeous Cattleyas, Cymbidiums, etc. Successful home grower shows you how. Free—full details. Flowerland, 4622-TY Wilshire, Los Angeles 5.

OPERATE profitable mail order business. Write Walter Service, 4159-B East 112th, Cleveland 5, Ohio.

MEN Wanted—Build Luggage And Cases At Home. We sell your products—supply complete instructions, materials, everything. No special equipment needed. Free details. Casecraft 805-H5 Sunset, Los Angeles 12, Calif.

$25 WEEKLY working two hours daily at home. Lycke, Box 2471-B, Cleveland 12, Ohio.

BRONZE Baby Shoes. Instructions, Equipment and mountings for genuine electroplated process. Free catalog. Hollywood Bronze Supply, Dept. B-1, 1624 East First Street, Los Angeles 33, California.

ENVELOPES addressed accurately, reasonably. Fast service. We have capable addressers in your city. Glenway System, 5713 Euclid, Cleveland 3, Ohio.

NEWEST Spare, Full-Time Home Business. $5 to $10 hour possible. Paint with suede—the finish with touch And eye-appeal. Beautify auto dashboards, signs, radios, toys, figurines, lamps—1001 others. Complete, Step-By-Step Instructions sent for no-risk examination. Free details. Coast, Los Angeles 61.

MEN.—Income from local information. No selling. Neherco, LaVerne 6, California.

NEED More Money To Live on? Increase your weekly income $20 to $25 or more in spare time. Supply Rawleigh Products to Consumers. Also openings for full time Dealers. Write Rawleigh's, Dept. E-DD-PSC, Freeport, Ill.

MAKE extra money. Address, mail postcards. Spare time every week. Write Box 14, Belmont, Mass.

BOOKKEEPERS, Increase earnings operating sensational bookkeeping service. Kern, 5632B Lankershim, North Hollywood, California.

BE appointed state notary public now. Write—Stationers, Helotes, Texas.

MINIATURE Trees. Why pay $2.00—$10.00 for growing secrets? Free Details. Tiny Trees, 5038 N. Winthrop, Chicago 40.

BRUSH Plating outfits connect to a battery, no tanks necessary. Your opportunity to make good income silvering mirrors, plating articles in the shop and home at low cost. Free particulars. Gunmetal Co., Ave. E, Decatur, Illinois.

LIQUID Rubber makes flexible molds. Free Sample. Chaney, 1130 E. 16th St., Jacksonville 6, Fla.

GROW Herbs & Spices (50 different kinds!) at home for fun or profit. Millions $$ worth used yearly in foods, drinks, cosmetics, perfumes, medicines, etc. Help fill huge demand. Successful home grower shows you how. Free—full details. Herb Land, 601-N So. Vermont, Los Angeles 5, California.

BREED Rare Tropical Fish at home. Earn Big Money! Learn Secrets! Help fill huge demand. Amazing Opportunity! Free Plan. Tropical Fish Breeders, Los Angeles 61, Calif.

HOW and where to obtain Capital? Free details. Star Service, Wapakoneta, Ohio.

BUY Wholesale, nationally advertised merchandise. Unlimited wealth of opportunities on credit. Sell on easy terms. Encore Industries, Dept. 212, Box 247, Midland, Mich.

700% PROFIT Taking and finishing one minute photos with wonderful camera. PDQ Camera Co., 1161 N. Cleveland Ave., PS, Chicago, Ill.

MINK Raising information free. Complete. Lake Superior Mink Farm, Superior E E5 Wisconsin.

YOUR Own name brand business. No investment; no inventory. Part time or full time. Sell famous brands of appliances, housewares, silverware, radios, vacuum cleaners, lamps, tools, clocks, watches, jewelry, etc., etc., over 1,000 items. Join thousands of successful independent dealers. Send for Free catalog and dealer price list. H. B. Davis Corp., Dept. F, 145 W. 15 St., New York City.

BECOME A game warden, professional hunter! Join forestry, park, fishery services. Good pay! Opportunities open! Free! —revealing "Select-Job Chart," details, job-getting secrets. Write "Home-Study Institute" MY, Los Angeles 19, California.

WOMEN! Sew ready-cut neckties at home. No experience necessary. No selling. No machine needed. Details free. Neckwear Supply, P. O. Box 2066-S, Inglewood 4, Cal.

"MAKE Perfumes," other products—Sell mailorder—Formula Catalogue Free. International, 6347 Parnell-PS-5, Chicago 21, Illinois.

$200 WEEKLY Cleaning Venetian Blinds. Free book. Burtt, 2434B, Wichita 13, Kansas.

$1,000 MONTHLY, home, mailorder, free advertising method. Revealing information. Seidel, 6000-B Sunset, Los Angeles 28.

POPCORN and Potato Chip Equipment. Eakins, Box 933-B5, Springfield, Ohio.

YOU can be president of your own company with no capital or experience. Free booklet "Ten Ways To Make Money In Your Own Business" shows you how. We ship orders under your name. Topval, Lindenhurst 221, New York.

BIG Profits with your imagination. Start national business from home promoting your own products or ideas. Details free. Banning B1, 40 South LosRobles Avenue, Pasadena 1, California.

WHOLESALE! 12,000 nationally famous products. 30-80% discounts! "Wholesale Trade Secrets" Catalog. Sensational business plans free. Derrom Company, 21-15 White, Paterson 23, New Jersey.

NAMES—Mail Order dealers—2c to 13c per thousand—Details—Emahiser's, 224¼ North Main Street, Fostoria, Ohio.

WE'VE Got a highly unusual deal for you on a new line of Fire Extinguishers. This is a new company, but you'll recognize the men behind it, (who have had more than 20 years experience in this field), when you write to us—and it might pay you well to airmail us today. The "Fire King" Company, Inc., Dept. 14, Littleton, Colorado.

MAIL Order business. 100% profit at home. Free details. Fisher's, Dept. S5, 4750 So. Central, Los Angeles 11, Calif.

RISKLESS, Wonderful wholesale business opportunity. Markoff, Box 4222-S, Washington, D.C.

REBUILD Batteries; Repair dolls; Make rubber stamps. Catalogue "60 Ideas" Free. Universal, Box 1076-B, Peoria, Ill.

THIS Is it! Your home business on $15.00. Considerable profits in undeveloped scientific field. Details $1.00. T & W, Box 369 Great Neck, N. Y.

START Your own cafe, diner. Home training reveals every step. Learn menus, foods. Write for free book, "Cafe, Diner Business." Restaurant Arts School, BU45, Fremont, Ohio.

FRANCHISE Opportunities nationwide! Secure profitable distributorship, dealership, agency. Information rushed. National Franchise Reports, R-528, 333 North Michigan Avenue, Chicago 1, Illinois.

SELL Religious items by mail. We furnish everything—Fill orders. Four complete successful plans $1. Details Free. Eastern, Box 142, Dorchester 24B, Mass.

$80.00 WEEKLY. Operate our selective mail-order business in your area, sparetime. Write: House of Plastics, Paramus 10, N. J.

FAMOUS Electric shaver $1.85. Terrific seller. Dealers wanted. Turner Company, 1170 Broadway, New York 1, N. Y.

LIQUID Marble — Brushed, sprayed! Mold novelties, tile. Particulars free. Marbleizing Service, Edwardsville, Ill.

TRADE-Business Magazines help you get ahead. Late single copies. More than 5,300 publications—all fields. Current List Free. Commercial Engraving Publishing Company, 34S North Ritter, Indianapolis 19, Indiana.

WHOLESALE! Complete Line Musical Instruments, Phonographs, Tape Recorders, Typewriters, Watches, Diamond Rings, Appliances, etc. Discounts to 75%! Send 50c (Refundable) for large catalog. Strauss Music Company, 25-14 Lafayette, Paterson 23, New Jersey.

ADVERTISING book matches—Cash in on big demand—sell Union Label matches. Cuts for all businesses and political parties—Free powerhouse selling kit—low prices—protection guaranteed on repeat orders—Cash commissions. Superior Match Co., Dept. PX-555, 7530 Greenwood, Chicago.

DOLLARS: Baby record books, Kitty Kat shoes, Hollywood souvenir cards, eleven thousand new prospects daily, sold by mail, use our literature. No-Co-Ro, Oakland 6, California.

FREE booklet "Money Making Facts" tells mechanically-inclined men how to start sparetime business at home. Charles Foley Company, Columbia Heights, Minn.

START venetian blind laundry, patented machine. Free information. LC Company, 522 N. Rural, Indianapolis 1, Indiana.

THRILLING Profitable Home Business. Make fast-seller chenille monkey trees, dolls, flowers. Terrific holiday demand. Information free. Velva, Bohemia 17, N. Y.

NATURAL molding rubber, extra thick. Free sample. Flock, W. Wooley, 115-B Donald, Peoria, Illinois.

TO $50.00 weekly. Sparetime, home operated mailorder business. Successful "Beginner's" plan. Everything supplied. Lynn, 10420-C National, Los Angeles 34, Calif.

FORTUNES Made raising crickets and fishworms. Write for free information. Carter Worm Co., Plains, Georgia.

"MAGIC Secrets of Wheat Trading," complete course, Pugh's Publications, Ambass. Station, Los Angeles 5, California.

OPPORTUNITY Mails three months 25c. Donovan, 793 Greenbelt, Levittown, N.Y.

N.Y. Classifieds airmailed $1. Valentine, Box 493, White Plains, N.Y.

MONEY in new greaseless doughnuts. Start in kitchen. No smoke. Sell stores. Free recipes. S. Ray Co., 3605 South 15 Ave., Minneapolis 7, Minn.

NEW Exceptionally Profitable plans. Ideas for home operated mail business. Rush name. Miller, 1881-R Roxbury Road, East Cleveland 12, Ohio.

HAVE Home Mail Business—Get $10 Orders in Every Mail—Keep $8.00. Everything furnished. Hutchinson, Box 87-C, Dorchester 22, Mass.

WINNING Mail order plans. Merchandise, books. Details free. Mid - State, Box 214-K, Syracuse 1, N. Y.

ELECTROPLATE autoparts, novelties, mirrors, baby shoes. Easy, inexpensive home processes. Free booklet. Tyco Metals, Box 13231-CQ, Houston 19, Texas.

Copyrighted material

WANTED! Home Producers, by manufacturers in our Clearing House Service. Become subcontractor, casting plastic products for these companies. Thousands of easy-to-make items required for consumer-industrial use. Cash in at home, without previous experience. Plastic Service Associates, Dept. 5-PS, East Boston 28, Massachusetts.

SAVE 20% to 50%. Buy wholesale! Nationally advertised merchandise. Free details! Beecher Sales, Box 2161-E, Cincinnati 1, Ohio.

PLASTERCRAFT molds, liquid rubber, plasters, flocks, candle supplies. Catalog and manual free. Jayhawk Plasters, Blue Rapids, Kansas.

MAKE Money at home. Mail letters featuring select merchandise. Get $10. orders in every mail. 100% profit. Everything furnished. Write: Nu-Way Enterprises, P-Box-747, Detroit 31, Michigan.

$26,500 SALES in two weeks! Amazing radio-mail order method. Free details. Broadcast Service, 1412-L Great Northern Building, Chicago 4, Ill.

EASY handwork makes fast-selling useful articles. Sample free. Sunmade Company, Brockton 64, Mass.

HAVE Home Business. Addressing-Mailing. Get Orders In Every Mail. Everything Furnished. Mednis, 10 Port Norfolk, Boston 22S, Mass.

FREE. New directory! 314 companies looking for people to work at home—typewriting, sewing, cooking, reweaving, growing plants, writing for magazines or television, starting home gift shop, etc. D. Economy, Rowley, Mass.

MAKE money helping other get out of debt, stop garnishments, save jobs, reestablish credit. Particulars free. Borum, R6, 411 West Walnut, Kalamazoo 42, Mich.

IMPORT-Export! Profitable details free. Warnar, Box 6, Fort Scott, Kansas.

$70 WEEKLY Guaranteed—home, spare time. Simplified mail Bookkeeping. Immediate income—easy! Auditax, 34651DK, Los Angeles 34.

LEARN to sell by mail. Inexpensive course reveals how. Ranse, Box 1719-D, Richmond 14, Virginia.

GROW Mushrooms. Cellar, shed, and outdoors. Spare, full time, year round. We pay $3.50 lb. We paid Babbitt $4,165.00 in few weeks. Free Book. Washington Mushroom Ind., Dept. 178, 2954 Admiral Way, Seattle, Washington.

DISTRIBUTORS—Large Profits. Terrific Repeat Orders. Unique Italian Brooms. Details free. Write P. S. Peacock, 915 Bryant Street, San Francisco, Calif.

EARN $2.00 hour! I do—making Sandals. Youngs, 1308-PS, South First, Arcadia, California.

OPPORTUNITY To earn $15,000 or more annually. Business of your own. Self-employed. Franchise protected and guaranteed. Live at home. No merchandise to buy. One of the most exclusive and non-competitive businesses in United States and Canada. Send for free explanatory booklet. Harrell & Company, Box 8-D, Louisville, Illinois.

MAKE Money selling Peps-It, the miracle cesspool and septic tank cleaner, deodorizer. Peps-It saves pumping, digging and expensive rodding. Retails $2.50. Costs you $1.00. Attention hardware and grocery stores. Electric Sewer Cleaning Co., Boston 34, Mass.

FREE Folio "Up to $45,000; Unlimited Vacations." No merchandise, equipment. Unknown! Work home—sparetime! Haylings-S15, Carlsbad, Calif.

WOULD You devote full time to a business offering $20,000 per year? Details 10c. Write H. C. Brown, Box 3003, San Angelo, Texas.

MONTHLY repeat business which you can operate in your own community. For free details write Grasak, 321—28th Street McKeesport, Pennsylvania.

COLORGLAZED Concrete pottery made without molds. Patented method. Cemetery products, novelties, tiles. Basement leak-sealing. Money-making projects. Booklet, details free. Men only. National Potteries, Grand Rapids, "Minnesota."

BUY it wholesale. Manufacturers. Distributors. Over 850,000 items. Literature free. Olsen 1231-B East Third St., Duluth 5 Minnesota.

$46 FROM Square Foot Plywood; Jigsaw necessary. Write: Woodart, Bridgewater, Mass.

$250 WEEK reported! Free book "505 Odd, Successful Businesses." Work home! Expect something Odd! Pacific-36C, Oceanside, California.

"DOLLARS In the Mail." The real secrets of mail selling. 68 page copyrighted book and one year consultation certificate, both for only $2.00 postpaid. Satisfaction guaranteed. The Gerwigs, 366 South Huron, Columbus 4, Ohio.

PARTNERSHIP Information. How to start. Withdraw. Oust unwanted partner. Particulars free. Reynard, Box 1265-C, Peoria, Illinois.

121 METHODS, Home moneymaking without capital. Completely new. Rush $1.00. Brockway, 1145 High, Topeka 1, Kansas.

MAKE And sell "Battery pep-up Preparations." Tremendous profits. Formula airmailed $1.00. F. Childress Company, 216 West Jackson, Chicago 6.

MAKE Money—Repair tobacco pipes in your own home—A profitable business from a very small investment. For complete particulars write Craft Pipe Repairs, Center Street, East Aurora, New York.

FREE Electroplating information. Money Making Plans. (Formula included). Send postcard for your copy. Highly paid, interesting, uncrowded field. Plater B. Hyde, 327 West 120th Street, Los Angeles 61, California.

OPPORTUNITY Seekers names. 60 days old. All seeking ways to make money at home 1,000 $8.00, typed on gummed labels. Two copies $10.50. Ken-West Distributors, 7-TB South Harlem Street, Worcester 4, Mass.

EARN $25-$40 Weekly mailing circulars for advertisers. Complete instructions—25c. Siwaslian, 4317-B Gleane, Elmhurst 73, N. Y.

UNUSUAL Opportunity. Spinning at home. Supplies, market, furnished. Angora House, PSM, Springfield, Illinois.

FREE. "How to Build Your Own Mail Order Business," with year's membership to Opportunists Mail Club. Receive hundreds of selected money-making propositions, business offerings. 25c year. Money back guarantee. Storm Associates, Cedarville, N. J.

MAKE Durable building plastic, easily. Beautiful, tough—101 uses—exclusive district—Unlimited demand—800% profit. Bays Laboratory, Oklahoma City 9.

ATTENTION Men: Work clothes below wholesale cost. Quality cotton pants 89c; shirts 79c; Coveralls $1.69; shop coats $1.59. All garments reconditioned, sterilized. We will ship anywhere C.O.D. Eastern Processing Co., Box C, Franklin Station, Baltimore 23, Maryland.

$4.20 BUYS Dozen $1.50 guaranteed Fire Extinguishers. Bill Mattox, 263-PS, Duluth, Minnesota.

FAST Selling mailorder item. Three selling plans, circular, sales letters and sample $1.00. Gordon Products, Box 1022A, Syracuse 1, New York.

MAKE Perfumes, other products. Sell mailorder, "Carelabs," 1914 Chouteau—PS55, St. Louis 3, Missouri.

TIN-Cans. Turn them into cash. Nine methods. Instructions 50c. Charles Company 12-EDH, Norwood, Ohio.

EVERYBODY Needs this! Profitable home business. Mailtrader, Box 643, Ann Arbor, Michigan.

EARN Cash! A. R. Dornan, 4 Whitfield Road, Somerville, Massachusetts.

MAKE Money at home as renewal headquarters for all magazines. Big profits now. Liberal commissions. Supplies furnished. Experience unnecessary. Write for Free Catalog. McGregor Magazine Agency, Dept. 510-B, Mount Morris, Illinois.

THIS Is your opportunity. Free details. C&L Sales, 203 Jackson Ave., Johnson City, Tennessee.

MAKE Money on service for hotels, restaurants, clubs. Details 50c. Fairview Industries, 20502 Lorain, Fairview Park 26, Ohio.

STORES. Stock stamp packets for collectors. Percentage basis. No investment. Jaydee, 218 Dickinson Southwest, Grand Rapids 7, Michigan.

MAILORDER Business operated in home. Our method explains advertising, manufacturers, how to begin, what and how to sell. $2.00 Liggett-Petty, 3005 Wayne, Kansas City, Missouri.

WHOLESALE Pricelist—Refrigerators, washers, televisions, Powertools, appliances, 25c. Belmont, 861 Dumont Ave., Brooklyn 7, New York.

$10,000 YEAR Easy! Own your own sales and buying service business without investment or inventory through America's (2) Greatest Wholesale Catalogs! Appliances, homewares, furniture, cameras, sporting goods, toys! Free catalog plans! General Wholesalers, Box 3058FG, San Francisco.

MAKE Money in landscaping—Start your own business, part or full time. Many good paying positions open. Earn while learning. Send for Free Book. National Landscape Institute, Dept. S-55, 310 S. Robertson Blvd., Los Angeles 48.

MAIL Order business—Your own. Write: Ferguson, 324 West Maple Road, Indianapolis 8, Indiana.

EARN Money at home easily, details $1.00. Michelle, 281 Columbia Circle, Ephrata, Washington.

$2.00 HOUR Guaranteed. Your Business. Investment no problem. Details $1.00. Kavenaugh, Box 74731 Oakwood Station, Los Angeles 4, Calif.

FANTASTIC Profits in your own Wholesale Buying Service! Buy 66-2/3% less than retail 10,000 famous Appliances, homewares, jewelry, sporting goods, furniture, toys. Sell others at discounts! Free details! National Buyers Service, Box 426FF, Oakland, California.

STOP! Be your Own Boss. Free Details. Knight's, Box 241, Cactus, Arizona.

PRINT for Profit at home. Amazing new method prints colorful posters, banners, greeting cards, glassware—anything. Hundreds at time. No press needed. No art. Fantastic profits! Need representative your area immediately! Free home-business plan. Screen-Print, Dept. PS-5, Los Angeles 61, California.

DOLLARS in the mail for you! Put your ad here and watch orders fill your mailbox. For as little as $9.00 you can advertise your product or service in the classified opportunities columns of Popular Science Monthly. The July issue closes on May 25. Write today for order blank. O. K. Kelly, Classified Adv. Mgr., Dept. 55, Popular Science Monthly, 353 Fourth Ave., New York 10, N. Y.

37A CLAIM INVESTIGATORS

INVESTIGATE Accidents! Many earn to $10,000 yearly. Claim Investigators needed by airlines, insurance companies, railroads, government offices. Also excellent opportunities for your own business. Allan earned over $2,000.00 in ten weeks without prior experience. Free book. No obligation. Placement counsel and help. Write today! Universal Schools, Dept. B-5, Box 8202, Dallas 5, Texas.

38 MONEYMAKING OPPORTUNITIES

FREE! "301 Profitable Small Businesses!" Amazing shoestring plans! Work Home! Start Sparetime! Deumant Surveys, Kenmore, 23-S, New York.

MAKE money addressing envelopes sparetime. Glenway, 5713 Euclid, Cleveland 3, Ohio.

SELL-buy Titania Gems. More brilliant than diamonds. $9.75 carat wholesale. Free Catalogue. Diamonite, 1404-S Mitchell, Oakland 1, California.

START A Buying Service, buy wholesale thousands nationally advertised products. Make big profits selling at sizeable discounts. Postcard brings details. American Buyers', 630-T Linden, Buffalo, N. Y.

EARN Ready Cash doing mailing work—No experience needed—Y. Wilson Business Service, 2875 Glendale Blvd., Los Angeles 39, California.

MAKE $10,000 Year and more with our (2) Great Wholesale Catalogs (64 and 300 pages)! Appliances, homewares, jewelry, furniture, sporting goods, toys! Free Catalog Plans! General Wholesalers, Box 3058FH, San Francisco.

Copyrighted material

PROFIT! Prestige! Publish a magazine under your own name! Only $3. per month! Sample, details 5c! Filmer, 910 Marion, Pharr 17, Texas.

DETECTIVES—Work home—Travel. Experience unnecessary. Detective Particulars free. Write. Wagoner, P-125 West 86th, New York 24.

MAN Wanted—Are you dissatisfied with your work? Would you like a business of your own? If so, write Rawleigh's, Dept. E-GG-PSC, Freeport, Illinois.

MAKE extra money. Address, mail postcards. Spare time every week. Write Box 14, Belmont, Mass.

EARN Money at home! Must have good handwriting. Write for details. Atlas, Box 188-P. Melrose, Mass.

NEW 7"x11" Ultra-Blue Signs, 7c, retail 50c. Sample free! Lowy, 812 Broadway, Dept. 864, New York 3.

SPARETIME Profits Taking Subscriptions. All Magazines, Wholesale Catalog Free. Cassell Publishers, Westfield, N. J.

FREE Course in locksmithing, picking, etc. W. Thompson, Box 738, Saratoga, Calif.

ADDRESS envelopes at home. $25 weekly possible, sparetime. No selling. Temple Co., Box 946 Muncie 7, Indiana.

FREE Folio "Up to $45,000; Unlimited Vacations." No merchandise, equipment. Unknown! Work home—sparetime! Haylings—S16, Carlsbad, Calif.

$35 WEEKLY addressing envelopes. Instructions $1, refundable. Adservice, Spring Valley 36, New York.

WANT to go in business for yourself without capital? We show you how. Postcard brings all details free. Topval, Lindenhurst 222, New York.

MAKE Money growing miniature trees on your window sill. Free seed and plan. National Nursery, Dept. GC, Inglewood 4, Calif.

FREE! Complete Mailorder Business! Terrific Profits! No Investment! VitaMins, 2908-PSX Beverly Boulevard, Los Angeles 57.

WHOLESALE! 12,000 nationally famous products. 30-80% discounts! "Wholesale Trade Secrets" Catalog. Sensational business plans free. Derrom Company, 21-17 White, Paterson 23, New Jersey.

FRANCHISE County agents wanted for copyrighted mailorder information service. You secure orders, we fill them. Sample mailing pieces, details, $1.00. L. C. Hannon, P.O. Box 4891, Kansas City, Mo.

PRINTING And office supplies wholesale. 20,000 items. Literature free. Royal, Box 368-S, Cleveland 27, Ohio.

DIAMONDS In Venezuela's rivers are making determined men wealthy. Have you the courage to seek your fortune in America's last frontier? Illustrated booklet, "Prospecting in Venezuela." Supplies only complete information. $1.00 cash or money order. A.M. Information Survey, Box 5091, Cristobal, Canal Zone.

HOME Business opportunity! Mailing literature featuring books, merchandise. Everything supplied. National, Box 88, Dorchester 22B, Massachusetts.

MONEYMAKER — Surefire — Complete plans 50c. Glover, 503 Newkirk, Trenton, N. J.

ADDRESS Envelopes at home $50.00 weekly possible, National Industries, 33 Hyde Park Ave., Jamaica Plain 30, Mass.

SAVE $50.00-$100.00. Make your garage as modern as your home. Open and close your garage door right from your car with an amazing Door-O-Matic electric garage door operator. New 1955 models for as little as $129.50. Attaches to any overhead door, pre-assembled at factory for easy installation, complete with full size motor. Write for details. Door-O-Matic Co., Dept. 60, Russia, Ohio.

GOLD, Silver—How to Refine, Test, make solders, alloys, etc. Book $4.25. Money-back guarantee. Herman, Publisher, 937-P West 12th, Los Angeles 15, Calif.

BUY, Sell and swap for profit. Amazing new method. Inquire, Box 621H, Culver City, Calif.

SELL Merchandise by mail. Everything supplied. Big profits. Details 10c. Stull's Buying Service, 621 Adams Ave., Scranton, Pa.

THOUSANDS Items wholesale catalog $1, refunded first order. Opportunity, Box 142S, Basking Ridge, N. J.

MONEY in sparetime Fixit Shop at home. Repeat cash business. Experience unnecessary. No selling. Free booklet explains. C. Foley Company, Columbia Heights, Minnesota.

ACME Saw sharpeners are the finest you can own. Don't be satisfied with less. Send for free literature. Max Mfg. Co., 138 Stockton Ave., San Jose 26, California.

GROW . . . Earthworms, sell-breeding stock, . . . soil culture, fishbait, home business opportunity. Write, "Earthworms", Corona, California.

SEND A dollar for informative report "How to Find Uranium." Raymond Jensen, 28 Grant Ave., Fords, New Jersey.

LEARN Technical metaphysics and insure your future. Easy, inexpensive correspondence course. Simplest method known. Diploma. Write: Premier College of Technical Metaphysics, 2532 McKenzie St., Vancouver, B.C., Canada.

HUSBAND-Wife successful in mail order business. Details free. Chas. S. Edwards, 5100A East Side Avenue, Dallas 14, Texas.

MAKE to $4.50 hour doing common pen lettering. National Artists, 801½-C North Marsalis, Dallas 3, Texas.

WANTED: Typewriter owners. Make handsome profits. Write today. Groves Company, 682 Hastings 3, Nebr.

EARN Money evenings, copying and duplicating comic cartoons for advertisers. Adservice, Argyle 2, Wisconsin.

ALUMINUM Awnings. Sell yourself. Sell neighbors. Factory prices. Write All Weather, Box 10254, Tampa, Florida.

TYPISTS! Make money at home. Mailers, 2 Madison, Greencastle, Indiana.

WIN contest money. General Contest Bulletin gives hundreds of tips. Lists current contests and rules. Sample 25c. General Contests, 1609-A East 5th, Duluth, Minnesota.

GROW Mushrooms. Cellar, shed, and outdoors. Spare, full time, year round. We pay $3.50 lb. We paid Babbitt $4,165.00 in few weeks. Free Book. Washington Mushroom Ind., Dept. 179, 2954 Admiral Way, Seattle, Washington.

$200. MONTHLY possible raising earthworms! Backyard, garage, basement. Complete illustrated booklet explains raising, feeding, packing, marketing. 25c postpaid! Ozark Worm Farm-V, Willow Springs, Mo.

GIANT Mails — Moneymaking Offers. Send 25c Today! Wrede's, Atkinson, N. C.

EXCEPTIONALLY Profitable Home Mailorder Business Plans. Lewis Bartlett, Richland, Georgia.

FREE Book "'505 Odd Successful Businesses." Work Home! Expect something Odd! Pacific-35C, Oceanside, Calif.

MAILORDER Business spare time. Book, "Doing Business by Mail" every business scheme fully explained, $1.00. Ken-West Distributors, 7-TB South Harlem Street, Worcester 4, Mass.

SHARPEN Scissors—Profitable—Full details—$1.00. Box 85, Bronx Central P.O., N. Y. 51.

WE Pay cash for home work. No selling. Wilco, Box 8032, Nashville 7, Tenn.

EXTRA Money addressing mailing postcards. Gul, 2419 Thomas, Chicago 22, Ill.

PROFITABLE Moneymaking guide, 25c. John C. Chester, 20-A Cromwell Place, Sea Cliff, New York.

SECRETS—Shortcuts, for "Profitable Selling" revealed in new manuscript. Details free. Barnes, 308 Westland N., Massillon, Ohio.

121 METHODS, Home moneymaking without capital. Completely new. Rush $1.00. Brockway, 1145 High, Topeka 1, Kansas.

MAKE Money; address; mail new self-selling catalog; big profits; 25c for sample complete details. Ken-West Distributors, 7-T South Harlem Street, Worcester 4, Mass.

MANUFACTURE Rhinestone and Pearl Jewelry at home. Latest creations, tremendous profits, no skill needed. Postcard brings illustrated catalog of settings, stones, etc. A. V. Cutt Co., Inc., 210-H Fifth Ave., New York 10, New York.

SELL Everybody—A new glue. Holds anything, anywhere, any weather. Instantly. Unbelievable. Demonstration 5 seconds. 24—$1.00 jars, $12.00. Sample $1.00. Postage Free. Best By Test Model Co., Ridgefield Park 20, New Jersey.

CONDENSED Booklet mail-order, export-import. Vinson Supply Co., Box 23, Roosevelt Station, Dayton, Ohio.

MAKE Waterproof paint for basements, masonry walls, swimming pools with Waterboss. One quart makes five gallons. $2.00 postpaid. Agents wanted. Waterboss, Herndon, Virginia.

"7 PLANS For making money at home!" $1.00. Ray Cunningham, Reddick, Florida.

MINIATURES, Sell on sight. Assemble our kits. Details 10c. Hill, 7224A Favor, Oakland, California.

CELERY. Sold $43 from ½ rod common soil. Following year raised 10,000 bunches on 1/10 acre. My copyright system $1.00. E. M. Hooley, 1492 West Eighth Ave., Albany, Oregon.

WHOLESALE Nationally advertised merchandise catalogue, $1.00. Donald Kabel, 870 Lafayette, Buffalo, New York.

$13.50 PER Thousand for home addressing. No selling. Details for stamp. H. M. Service, Box 37215-PS, Los Angeles 37.

BUY Wholesale! Save 66-2/3%! Everything for Home, garden, auto, sports. Free Catalog! Wholesalers Mart, Box 6125FB, Houston, Texas.

DOLLARS in the mail for you! Put your ad here and watch orders fill your mailbox. For as little as $9.00 you can advertise your product or service in the classified opportunities columns of Popular Science Monthly. The July issue closes on May 25. Write today for order blank. O. K. Kelly, Classified Adv. Mgr., Dept. 55, Popular Science Monthly, 353 Fourth Ave., New York 10, N. Y.

39 FORMULAS, PLANS, ETC.

FORMULAS—All kinds. Latest products. Literature free. Kemico, Park Ridge 15, Ill.

COMMERCIAL Formulas—catalog 10c. George, Chemist, 5150 Wilton Pl., Los Angeles 62, Calif.

FREE Formula list—anything analyzed. Northwestern Laboratories, 2316 Brown, Evanston, Illinois.

LIFETIME Business! Manufacture extremely profitable products! Lists free! Thermowks, Peoria 4, Illinois.

"FILM-Etch" Fascinating color process —Hobby or business—Directions $1.00. Box 406, Quincy 69, Mass.

FREE Formula Catalog. Anything analyzed $35.00. Western Chemical, Salem, Ore.

ANY Formula $5.00. Satisfaction guaranteed. Jack, Consulting Chemist, 5138 Gainor, Philadelphia 31.

MODERN formulas for today's fastest selling big-profit products. Literature free! Miller, Chemist, 1517-A, Tampa, Florida.

40 PLASTICS

PLASTICS home-craft course for Men and Women. Tells and shows how to make hundreds of fast selling plastics products. All plastics and materials for 23 projects included in course. No special tools needed. Course pays for itself. Write for Free booklet. Interstate Training Service, Dept. D-2-E, Portland 13, Oregon.

PLEXIGLAS, Lucite sq. ft. (12"x12") cost 1/16" $1.14, ⅛" $1.50, 3/16" $1.85, ¼" $2.20. Add 10% for postage. Almac Plastics, 600 Broadway, New York 12, N. Y.

NEW Liquid casting plastic. Clear, colors. Embed flowers, insects, coins. Saw, drill, carve. Send 25c for "How to Cast with Liquid Plastic" and proved Success Plan showing how to make money at home. Castolite, Dept. E-102, Woodstock, Illinois.

VINYLITE. Price list sent free. Solomson, 46A Cornhill, Boston 8, Mass.

PLEXIGLAS Any size clear sheets ⅛" $1.10 square foot. Ultra Plastics Mfg., Pitman 18, N.J.

PLASTIC Sheets, rods, tubes, plexiglas, vinyl, acetate, nylon, teflon, fiberglas, from America's largest plastic warehouse. Send for Free List. Cadillac Plastic Co., 2111 Olive, St. Louis 3, Mo.

Copyrighted material

PLEXIGLAS sheets—cut to size—clear, all thicknesses—standard outdoor translucent colors. McClarin Plastics, P.O. Box 168B, Hanover, Pa.

PLEXIGLAS, Fiberglas, Polyester, Acetate, Vinylite. Fast service. Wholesale-retail. Catalog—15c. Gem-O'-Lite, Box 6862P, North Hollywood, California.

NEW, Inexpensive molding press; beautiful samples 50c, refundable. Paragon, Lewiston, Ohio.

FIBERGLAS-Resins for boats in our catalogue. Vanhorn Plastics, 1905 Ingersoll, Des Moines, Iowa.

UNBELIEVABLE — Complete plastic laminating kit—$2.00—Klein, 1804 Harrison, New York 53.

PLEXIGLAS, Lucite. Square foot cost 1/16"—$1.10, 1/8"—$1.45, 3/16"—$1.75, 1/4"—$2.15, 3/8"—$3.28, 1/2"—$4.38. Colors add 10%. Send 15% for postage. Aristocrat Plastics, Inc., 55 Clarkson St., New York City.

41 CHEMISTRY & PHYSICS

NEW idea chemical and apparatus outfits for home experimenting. Photo-scales, microscopes, chemicals, biologicals, and laboratory supplies in small quantities. Catalog 25c. Established 1931. John H. Winn, 124B West 23rd St., New York, N.Y.

GEIGER And Scintillation Counters. $29.95 up. Catalog 10c. Atomic Laboratories, Box 343, Berkeley, California.

ILLUSTRATED Catalog: Chemistry, mineralogy, biology 20c. Tracey Laboratories, Evanston, Illinois.

CHEMICALS and apparatus for industrial, analytical and private laboratories. Catalog 25c. Dept. M-26, Biological Supply Co., 1176 Mt. Hope Ave., Rochester 20, N.Y.

"FUTURE Chemists of America" teaches chemistry for beginners. All ages. Systematic. Exciting. Practical. First lesson 25c. Parkway Laboratory, R #1, McKees Rocks, Penna.

NEW Catalog, lists, 25c. Laboratory Sales, Box 161-B, Brighton, Mass.

AMAZING New Book of Science, Experiments, Formulas and catalogue of Laboratory Supplies. Only 25c. National Scientific Co., Dept. PS-5, 2204 W. North Ave., Chicago 47, Illinois.

42 HELP WANTED

MAKE extra money. Address, mail postcards. Spare time every week. Write Box 14, Belmont, Mass.

OVERSEAS, Latin American, Alaska, Canada Employment. Originator 1955 "Foreign Service Directory" Up-To-Minute Report on Military & Civilian Construction; Oil Companies; Aviation; Transportation; Steamship; Mining; Government Job Info. How-When-Where to apply. Listing Firms Hiring. $1.00. Global Reports, Box 883-S, Hollywood 28, Calif.

FOREIGN Employment Construction Work. If interested in foreign projects with high pay, write Foreign Service Bureau, (Dept. P.S.), Metuchen, New Jersey.

CALIFORNIA jobs. San Francisco classified airmailed $1.00. Hubbard, Box 1442, Palo Alto, Calif.

ADDRESSING Typing Materials furnished rush 25c. Hustlers Club, Alger, Mich.

FOREIGN U.S. jobs to $18,000. Many overseas countries, fare paid. Skilled-unskilled trades, office. Stamped self-addressed env. brings reply. Job Opportunities, Waseca, 2C, Minn.

JOBS To $1,500 monthly. All trades. So. America, Europe, USA. Application forms. Fare paid. No employment fees. For quick reply Write Dept. 76D. National Employment Information, 1020 Broad, Newark, N.J.

ALASKA! $1.00 brings accurate information on employment, homesteading, vacationing, mineral and oil development. Arctic Alaskan Enterprises, Dept. H, Box 3656, Anchorage, Alaska.

WANTED: Adventurous young men to accept supervisory positions in fabulous South America—Land of the future. $12,000 to $32,000 per annum, Tax Free. Men who excell in constructive trades should not pass up this opportunity. Needed are, drivers, operators, electricians, mechanics, carpenters, concrete hands, etc. Over 40% have qualified. $2.00 brings immediate service. Pan-American Constructers' Assn., Box 481, Baltimore 3, Md.

NEW Orleans, Baton Rouge, Louisiana, help wanted columns airmailed $1.00. A. Caroway, 1815 Perkins Rd., Baton Rouge 6, La.

INDIANAPOLIS—Help Wanted and business opportunities column airmailed $1.00. Box 7242, Indianapolis, Ind.

FLINT, Michigan, prosperous city, help wanted and business opportunities column $1.00. Grades, Box 1044, Flint, Michigan.

NOW Hiring 12,500 men for overseas and Alaska! Construction $830-$1053 monthly; factory $760; Office $650. Overtime, free transportation. Catalog. $1.00. Jobservice D-1, Box 30, Billings, Montana.

HONOLULU Employers Actively Hiring. Details $1.00. Speedihires, #3 Campbell Block, Honolulu 13, Hawaii.

LOS Angeles help wanted columns airmailed $1.00. Menick, Box 222S, Whittier, California.

INVESTIGATE Booming Foreign and U.S. Construction, Aviation, Oil Opportunities, for Trades—Truck Drivers—Laborers — Engineers — Supervisors — Many Others. Who to contact for highest paying jobs. To $1500.00 Monthly. Latest Copyrighted Reports covering over 52 Countries, including U.S., St. Lawrence Project, Spain, Far North, Alaska, South America, Europe, Canada, etc. Year exclusive registration and advisory service. Application forms. Unconditional Money-Back Guarantee of Satisfaction. Immediate Service. $2.00. Airmailed $2.25. (COD's Accepted). International Reporter, Box 1047-SO, St. Louis 1, Mo.

DENVER Help and business wanted columns. Air-Mailed $1.00. P. O. Box 186, Penrose, Colorado.

OVERSEAS And U.S. jobs. Men, women. Skilled, unskilled. High pay. Postcard brings details. Eastland, Box 1406-B, Los Angeles 28, California.

PHILA'S Largest help wanted columns $1.00 also remails 25c. Flaville, 336 Devereaux, Phila. 11, Penna.

EXTRA Money addressing mailing postcards. Gul, 2419 Thomas, Chicago 22, Ill.

LOOK Los Angeles Jobs Airmailed $1.00. Johnson, P.O. Box 22, Los Angeles 53, California.

LOS Angeles Help Wanted and Home Rental columns Airmailed $1.00. Shield, 5745 Second, Long Beach, California.

MILWAUKEE Help Wanted columns airmailed $1.00. Semrad, 1579A S. 16 St., Milwaukee 4, Wisconsin.

$1300.00 MONTHLY for truck drivers. $1400.00 monthly for carpenters, electricians, plumbers, mechanics, $1200.00 for clerks and laborers. Full information and complete foreign listings, with current information on Spain, Korea, Australia, Alaska & Canada, $1.00. Current information on stateside projects, $1.00. Dept. 4-E, Opportunities Unlimited, 1110 Commerce Bldg., St. Paul, Minnesota.

HIGH-Paying jobs for men and women all over the world! Clerical or Trades. Send $1.00 for satisfaction-guaranteed Job-listings to: Global Enterprises, 1551 Broadway, New York City.

LOS Angeles help wanted ads airmailed $1.00. Letters remailed 25c. Box 104, South Pasadena, California.

GRAND Rapids help wanted columns airmailed. Eister, 213 Pleasant SE, Grand Rapids, Mich.

1000 JOBS In California. All types available. Information about Salary, names of Companies, new industries. Highest pay in U.S. Send $1.00 to Personnel Consultants, 736 Suite 8L Alcatraz Avenue, Oakland, California.

DOLLARS in the mail for you! Put your ad here and watch orders fill your mailbox. For as little as $9.00 you can advertise your product or service in the classified opportunities columns of Popular Science Monthly. The July issue closes on May 25. Write today for order blank. O. K. Kelly, Classified Adv. Mgr., Dept. 55, Popular Science Monthly, 353 Fourth Ave., New York 10, N. Y.

43 AGENTS WANTED

BUY Wholesale—25,000 items—Catalog 25c. Matthews, 1472-A8 Broadway, New York City 36

AGENTS—300% profit selling genuine gold window letters; stores and offices. Free samples. Metallic Sign Letter Co., 431-E North Clark, Chicago.

BUY Wholesale thousands nationally advertised products at big discounts. Free "Wholesale Plan." American Buyers', 629-T Linden, Buffalo, New York.

FREE Booklet "$5,000—$45,000; Unlimited Vacations." Work home—sparetime. No merchandise, equipment! 100 other home-work businesses! Haylings—PA5, Carlsbad, California.

YOUR own business—Suits $1.50; Overcoats 65c; Mackinaws 35c; Shoes 12½c; Ladies' Coats 30c; Dresses 15c. Enormous profits. Catalog Free. Moro, 1218-J South Jefferson, Chicago 7.

60% PROFIT On Cosmetics—Famous nationally advertised Hollywood Cosmetics pay 60%! Make $25 day up! Hire others. For free samples, details, write Studio Girl, Glendale, Calif. Dept. PS-55.

EARN $30.00 daily with "Dab-it," sensational spot-remover stick. Like magic! Buyers everywhere! Big sales, profits. Free details. M&M, Dept. S-1, 842 Third Ave., N.Y.C. 22.

GOLD or Silver letters, numbers, Windows, Doors Trucks. 1" to 6". 500% Profits—Free Samples. Atlas-U, 544 West 79th, Chicago 20.

START Your Own Business On Credit. Your own boss. 1135 of our Dealers sold $5,000 to $30,000 in 1954. We supply stocks, equipment on credit. 200 home necessities. Sales experience unnecessary. Pleasant profitable business backed by world-wide industry. Write Rawleigh's, Dept. E-U-PSC, Freeport, Illinois.

ABSOLUTELY Free—Sales Kit. Increase your income. Send postcard today requesting kit showing new line, belt buckles with your name or personal initials, cap badges, tie clasps, choice 3000 different emblems. Hook-Fast, Box 1425PS, Providence, R.I.

MAKE extra money. Address, mail postcards. Spare time every week. Write Box 14, Belmont, Mass.

GET New Shirt Outfit Free; make $90.00 weekly on 5 average orders a day. Famous quality Made-To-Measure dress and sport shirts at $3.95 up sell fast to all men. No experience needed. Full or part time. Write: Packard Shirt Co., Dept. 895, Terre Haute, Indiana.

30,000,000 WOMEN want amazing new Automatic Refrigerator Defroster. You sell 8 out of 10 on sure-fire Free Trial. $250.00 weekly profit not uncommon. Rush postcard for guaranteed plan. D-Frost-O-Matic, Dept. H-103, 173 W. Madison St., Chicago 2, Illinois.

INCREASE your income—Personal initialed buckles, belts, cap badges. Free information—Hook-Fast, Box 480 (PS), Roanoke, Va.

BIG Money making opportunity. Exclusive line work uniforms, Jackets, pants, shirts, coveralls. Advertising embroidered. Every business prospect. Outfit Free. Master Div., 331 Water, Ligonier, Indiana.

NEW Jobs open in selling! Send name, address for five free issues of Opportunity Magazine's money-making guide, listing hundreds of companies who'll pay you well, full or part-time. No experience needed. Opportunity, 850 N. Dearborn, Dept. 18, Chicago, Illinois.

HAVE Your own business, buy wholesale, make big profits. Free General Mdse. Catalog. Jay Norris, Dept. PS, 445 Broome St., New York.

MAKE Money giving away free hosiery! Introduce amazing nylon stockings (guaranteed against runs and snags) and men's—children's hosiery (guaranteed one year) by giving away free trial pairs regardless whether or not final purchase is made! Earn up to $3 hour spare time. Mail postcard today for free samples men's and women's hosiery with complete money-making outfits. Nothing to pay now or later. Absolutely no obligation. Kendex, Babylon 54, N. Y.

GOOD Man Can make $3,000.00 next 90 days. Every house in town wants amazing NiLite glowing curbside house numbers. Automatic selling plan pays profits everyday. Write today for details Free. NiLite, 173 W. Madison, Dept. H-81, Chicago.

BEAUTIFUL Feather Pictures. 200% Profit! Free sample. Apartado 9036, Mexico 1, D. F.

Copyrighted material

AGENTS—Salesmen: Sell beautiful hand colored plastic enlargements and sensational new personalized photo compacts, rings, bracelets, lockets, etc. Experience unnecessary. 40% advance commissions. We deliver, collect. Wonderful sideline—better full time. Free sample outfit. Novel Portrait Co., 3343 North Ave., Chicago, Ill.

NEW Plastic mending tape. Just press on! Repairs clothing instantly. Lightning seller. Samples sent on trial. Kristee 71, Akron, Ohio.

$8,000 PROFIT a year—from just one sale a day! Keep/Safe, only full-sized personal safe sold direct, lets you offer low-cost fire and theft protection that all homeowners, farmers and businessmen need—and less than 5% have! $73.95 sale means $26.45 profit, plus big bonus. No competition. Exclusive territory. Full details from manufacturer, John D. Brush & Co., 576 West Ave., Rochester, N.Y.

WHOLESALE! 12,000 nationally famous products. 30-80% discounts! "Wholesale Trade Secrets" Catalog. Sensational business plans free. Derrom Company, 21-16 White, Paterson 23, New Jersey.

SELL Advertising specialties and executive gifts for old established firm. Good thing for man with wide acquaintance among business firms. Opportunity for hustler who likes to make money and isn't afraid to make calls. Develop your own business with no investment. Leads given. Best selling season now on. Write today. Newton Mfg. Co., Dept. GS-1, Newton, Iowa.

HIGHLY Profitable magnetic pencils for everyone. Samples $1.00. Nicholson Products, 3403 Cahuenga, Los Angeles 28, Cal.

FREE demonstrator offer. Power mowers. Home agents. Dealers. Terms. Farmco-52, Excelsior Springs, Mo.

TOOLS Hardwares Catalog 25c Refundable. Read Company, Box 125, New York 32.

ANYONE Can Sell famous Hoover Uniforms for beauty shops, waitresses, nurses, doctors, others. All popular miracle fabrics—nylon, dacron, orlon. Exclusive styles, top quality. Big cash income now, real future. Equipment free. Hoover, Dept. P-101, New York 11, N. Y.

MAKE Money Introducing World's cutest children's dresses. Big selection, adorable styles. Low prices. Complete display free. Rush name, Harford, Dept. N6341 Cincinnati 25, Ohio.

CALIFORNIA sweet smelling beads, sensational sellers. Particulars free. Mission, 2328P West Pico, Los Angeles 6, Calif.

SENSATIONAL—The easy way to clean—shine autos with $2.00 Dustex. Chemically treated for long lasting, dirt removing cloth. Write for selling plan. Dustex, 2616 Harrison, Waukegan, Illinois.

REMARKABLE High-Level Position. Big income, even spare time, with New 1955 Car as bonus! Amazing guaranteed nylons. Big demand. Write Wilknit, 2055 Wash., Greenfield, Ohio.

$1.00 PROFIT selling $2.95 photo enlargement offer. Allen Studio, Reigler Bldg., Little Rock, Arkansas.

EARN $200 weekly! "Seal-Tite," sensational $1.98 puncture-proofer guaranteed to stop flats. Big sales, profits. Free Sales Kit. M&M, Dept. S-2, 842 Third Ave., N.Y.C. 22.

NEW Chemical discovery. Pro Auto Wax, easy way to car beauty. Free sample, information. Amazing profits. Burford Auto Finishes, 1660 20th Street, Santa Monica, California.

SPRAY—Can fire extinguisher. Sell $2.00 you make $1.50. Eleven other profitable pressurized spray can products. Amazing sellers, repeaters. Free literature. Strobel Aerosol Co., 2412-W Market, Louisville, Ky.

FREE book "505 Odd, Successful Businesses." Work home! Expect something Odd! Pacific-38C, Oceanside, Calif.

SELL Yourself sell neighbors glass jalousies for windows, porches, doors. Factory prices. Groff, Box 10254, Tampa, Fla.

BUY Wholesale 450,000 Products. Literature Free. Carter, Box 6011-F, Chicago 80.

A Salesman's dream. Wholesale. Thousands of articles Nationally Advertised. Tremendous discounts. Share our profits with us. Premiums. A.I.M. Co., Box 2002, Paterson, New Jersey.

MAKE Extra Money. Sell front door name plates to friends, neighbors. Retail $1.98—you make $1.00! Free selling kit. Modern Engraving Co., P.O. Box 194, Boston 14, Mass.

MAKE Money Selling Ties! Buy from manufacturer. Pleated, Feather, Bows, Tie Kerchief Set. Knitted slims, regulars. Money Back Guarantee. We pay postage. Special Offer—2 Sample Ties only $1.00. Free Catalog. Philip's Neckwear, 20 W. 22nd, Dept. 416, New York 10.

FOR Proof of what you can do in specialty manufacturing get our literature. It's free! Miller, Specialty Chemist, Tampa, Florida.

MADE To Measure English Tailored suits, jackets, trousers from best English Worsteds, Gabardines, Flannels, Cashmeres. Rapid Service. Direct Buyers and Agents Requireds. Write airmail for price lists, order forms. D. Chellaram, 131 Main Street, Gibraltar.

BUY Wholesale! 10,000 Name brand products! Save 66-2/3%! Big profits selling others spare time! Free details. National Buyers Service, Box 426FE, Oakland, Calif.

BIG Profits Yours—Sell revolutionary Portable Room Climatizers, also Fire Alarm and Extinguisher Kits. Write for literature and sample prices. Micro-Moisture Controls, Inc., Mineola 50, N. Y.

EARN $46.80 daily! One application Silicone, wax-treated "Car-Glo" cloth cleans car beautifully. Big sales, profits. Free details. M&M, Dept. S-3, 842 Third Ave., N.Y.C. 22.

44 HIGH-GRADE SALESMEN

DO You Have Friends . . . Among Maintenance, Purchasing, Safety Men in Factories, Institutions, Churches, Hospitals, etc. Show them how they can save thousands. Credit for rated accounts. Cash commissions. Accounts protected. Mr. M. A. Dollar, Vice President, Cost Control Chemicals Co., Sanitary And Maintenance Chemists, 45-A Earle St., Newark, N. J.

AD Matches! Sell amazing designs—10, 20, 30, 40, and 240-light book matches. Bigger spot cash commissions; every business a prospect. Low prices for high quality. Repeats. Start without experience; men, women; full, part time. Buy nothing! Sales kit furnished. Match Corp., Dept. PS-65, Chicago 32, Illinois.

ADVERTISING book matches—Cash in on big demand—sell Union label matches. Cuts for all businesses and political parties—Free powerhouse selling kit—low prices—protection guaranteed on repeat orders—Cash commissions. Superior Match Co., Dept. P-555, 7530 Greenwood, Chicago.

45 EDUCATIONAL & INSTRUCTION

BOOKKEEPERS! Increase your earnings! Operate your own simplified "Dollar-A-Week" Bookkeeping and Tax Service. Full or spare time. Details Free. No obligation. Ellis, Box 203, Cedar Grove, North Carolina.

USED Correspondence Courses and Books sold and rented. Money back guarantee. Catalog free. (Courses Bought.) Lee Mountain, Pisgah, Alabama.

HIGH School—No Classes. Study at home. Spare time. Diploma awarded. Write for Free catalog. HBA-45, Wayne School, 2527 N. Sheffield, Chicago 14, Ill.

COMPLETE Your High School at home in spare time with 58-year-old school. Texts furnished. No classes. Diploma. Information booklet free. American School, Dept. X546, Drexel at 58th, Chicago 37, Illinois.

BE a Real Estate Broker. Study at Home. Write for Free book today. GI approved. Weaver School of Real Estate, 2020D Grand, Kansas City, Mo.

AUCTIONEERING! Be an auctioneer. Earn big money. Term soon. Write for catalog. Kansas City Auction School, Suite 312 Shankman Bldg., 3119 Troost, Kansas City, Missouri.

EARN While You Learn Auto And Diesel Mechanics. Master this top paying trade. Many graduates earn $100 a week and up. Approved for Korean veterans. For free information write Dept. No. 262, Nashville Auto-Diesel College, Nashville 3, Tenn.

EARN College degree, remain employed. Write: Brentwood College, Box 19-721, Los Angeles 19, California.

STUDY For Doctor's degree of Psychology, Metaphysics and Divinity. Correspondence courses only. College of Divine Metaphysics, Dept. P-S, 2811 North Illinois, Indianapolis 8, Ind.

MEDICAL Laboratory Technicians in great demand. We train you in your own home. Catalogue free. Imperial Technical Institute, Box 973-B, Austin, Texas.

DOUBLE Your pay with a College Equivalency Degree. Wonderful opportunities. No tedious courses. Bulletin 10c. Cramwell Institute, Adams 7, Mass.

BECOME An expert Real Estate Broker or Salesman. Make money anywhere. Complete home study course. Free information. Kansas City Realty School, Suite 312, 3119 Troost, Kansas City, Missouri.

PRACTICAL Nursing—Learn Easily at Home. Spare Time. Big demand, good earnings. High School not necessary. Write for free booklet. Wayne School, Dept. FH-30, 2525 Sheffield, Chicago 14, Ill.

USE Canfield Voco-Records for a Dynamic singing and speaking voice. Thrilling details! 2018 Fifth Avenue South, Minneapolis 4, Minnesota.

EARN Degree—orthodox home study religious courses. Free literature. Bible School, 517 Merchants Bank Bldg., Indianapolis, Ind.

U.S. Gov't. Jobs! Men-Women, 18-55. Start high as $350.00 month. Qualify Now! 23,000 jobs open. Experience often unnecessary. Get Free 36-page book showing jobs, salaries, requirements, sample tests. Write: Franklin Institute, Dept. D22, Rochester, New York.

EARN college degree. Remain Employed. Fremont College, 915-s Grandview St., Los Angeles 6, Calif.

X-RAY Technicians in great demand. Learn at home. Fascinating work. Good pay. Free catalog. National Institute, Desk 15, 159 East Ontario, Chicago 11.

WELDING training pays at Hobart Welding School, Box P-551, Troy, Ohio. VA Contract. Best equipment. Catalog Free.

PIANO Tuning Pays. Learn this profitable profession at home easily with patented Tonometer and mechanical aids. No knowledge music necessary. Diploma granted. Write for booklet. Niles Bryant School, 3731 Stockton Blvd., Dept. S, Sacramento 20, Calif.

567 HOMESTUDY courses, textbooks. Sensational bargains! Free illustrated catalog. Nelson Company, 210 South Clinton, Dept. 9EV-1, Chicago 6.

HOME Study course, drugless therapy. Free literature. Inst. of Drugless Therapy, Tama, Iowa.

GROW Mushrooms. Cellar, shed, and outdoors. Spare, full time, year round. We pay $3.50 lb. We paid Babbitt $4,165.00 in few weeks. Free Book. Washington Mushroom Ind., Dept. 180, 2954 Admiral Way, Seattle, Washington.

FREE Voice Book! Shows you how you can train for strong, confident voice. Sound masculine! (State Age.) Prefect Voice Institute, 210 South Clinton, Studio 2EV-1, Chicago 6.

TRANSFORM yourself via subconscious dynamics. Free Amazing Brochure. Box 847 (A-5), Ocean Park, Calif.

PIANO Tuning pays. Big money in spare time. Learn at home in 30 days. Phonograph records, tools and instructions furnished. Information Free. Capitol City Tuning School, 16 Southwest 2nd, Dept. 106, Fort Lauderdale, Florida.

CORRESPONDENCE Course. Drugless service. Co-Ordipath, 502 Ogilvie Bldg., San Antonio 5, Texas.

"GENIUS?" Determine your own I.Q.—For complete Intelligence Test send $1.00—Test Ur-Self Bureau, 118 West Avenue, Buffalo 1, N. Y.

HELP Yourself! Solve personal problems by Self-Mastery. Free information. The Leavitt Science, Clinton 4, Illinois.

MEDICAL Laboratory technique. Learn at home. Big demand. Good pay. Catalog free. Century College, Desk 2, 9 East Ohio, Chicago 11.

ENGINEERING Degrees earned through Extension Division. American College of Engineering, Box 27724 (A), Hollywood 27, Calif.

CAMERA Maintenance—Clearly written, profusely illustrated manual now available. $1.50 postpaid. Mills School of Camera Repair, 1857 N. Western Ave., Hollywood 27, Calif.

LEARN mathematics at home. Individualized instruction. The New Correspondence School. Box 27, St. Johns Station, Brooklyn 13, New York.

EDUCATIONAL books, correspondence courses, bought, sold, rented. Free Catalog. Willard Bayles, 211 Essex, Hackensack, New Jersey.

BECOME a Doctor of Psychology or Metaphysics. Learn secret of contentment, happiness. Win degree of PsD. or MsD. Solve mental worries. Free book. College of Universal Truth, 5038-K Broadway, Chicago.

STAMMERING Habit corrected. Successful Emery Correspondence Course featured by Newsweek, Medical Record. Free details. Emery Institute, Box 867-P, Winter Park, Florida.

SQUARE Peg in round hole? Dissatisfied? Restless? Unhappy? Do psychological tests at home. Uncover true abilities, aptitudes. First time available. Low cost. Details free. Write Psychologic Testing Institute, Dept. 265, 201 N. Wells, Chicago 6, Ill.

BASEBALL Fans! Really learn scoring! Permanently record games you play, watch, listen to. Standard professional system. Complete $1.00. Kreech, 1186 Broadway, N. Y. 1.

46 CONTESTS

WIN Prize contests. New book illustrates winning systems. Only 50c. Satisfaction guaranteed. Contests, 4317-B Gleane, Elmhurst 73, N. Y.

47 DETECTIVES

DETECTIVE Training. Phillips Secret Service System, 1917-C North Kenneth, Chicago 39 Ill.

DETECTIVES—Work home—Travel. Experience unnecessary. Detective Particulars free. Write, Wagoner, P-125 West 86th, New York 24.

48 LANGUAGE OUTFITS

IT'S Fun learning a language by Linguaphone's World Standard Conversational Method. At home, quickly, easily master French, Spanish, German, Russian, Japanese, Modern Greek—32 languages available. Save time, work, money. Send for Free Book. Linguaphone Institute, 54-055 Radio City, New York 20.

50 BUSINESS SERVICE, INFORMATION, NAME LISTS

1,000 CIRCULARS Mailed for $3.00. Printed and mailed $5.50. Prompt, reliable service. Gem Press, 554 Fehr Ave., Louisville 2, Ky.

MAILING Lists, most any classification. 1000 names $5.00. 1000 your circulars mailed with ours $4.00. 5000 your circulars printed and mailed $12.95. Write Dixie Mailers, King, North Carolina.

MAILING list—Most classification 1000 Names $5.00. 1000 your circulars mailed with ours $4.00. Hamilton Sales Company, York, Nebraska.

51 SPECIAL SERVICES

LET Us do your drafting. All phases of drafting: mechanical, Architectural, structural, patent, detail and working drawings! Write estimate. "Personalized Drafting Service," 22 Zabriskie Street, Jersey City 7, New Jersey.

LETTERS Remailed 25c. Literature, samples 10c. Persil, 436 N. Y. Avenue, Brooklyn 25, N. Y.

OMAHA 2, Nebraska, remails 25c. Sunday classifieds airmailed $1.00. Box 560.

52 AUTHORS SERVICE

NO luck finding a book publisher? Write for Free Booklet PS. Vantage Press, 120 West 31st, New York.

WANTED: Book manuscripts—all subjects considered. Greenwich Book Pub. (Atten. Mr. Ibsen). 489 Fifth Ave., N.Y.C.

WRITERS! Interesting information. Contact Hulet, 431 CPW, New York 25.

53 ADVERTISING, AGENCIES, ETC., FOR ADVERTISERS

BEFORE Advertising—get instructive Ad-Guide and Ratebook, 10c. Ideas developed. Advertisements prepared free. Chicago Advertising Agency (Established 1900). Chicago 4.

MAKE extra money. Address, mail postcards. Spare time every week. Write Box 14, Belmont, Mass.

ADVERTISE: 24 words, 100 Canadian Newspapers $5.50. Lists Free. Advertising Bureau, 10511-P Springfield, Chicago 43.

35 WORD ad, 21,000 Bulletins, Printed, Mailed, $2.80. Proof sent. Direct Publishers, Conshohocken, Pa.

54 CARTOONING, SIGN PAINTING, CHALK TALKS

CARTOON Your way to success! Internationally known instructor, Raye Burns, will personally teach you to create original, salable cartoons at home. Course of 26 lessons only $2.85. Write for Free Details. Raye Burns School, Box 3583-S, Cleveland 18, Ohio.

"HOW To Make Money With Simple Cartoons"—A book everyone who likes to draw should have. It is free; no obligation. Simply address Cartoonists' Exchange, Dept. 195C, Pleasant Hill, Ohio.

PAINT Signs! Use patterns! Alphabet $1.00. Harwell, PS5, Byrdstown, Tenn.

PAINT Signs with Master Patterns. Set 1¼" to 12" high, with supplies, $2.00; Sample 3c. Eyerly, PS-583, Newton, Iowa.

BARGAINS—Quick landscape painting, poster art, lettering, cartooning. Catalog free. Art Book Shop, Arnold 5, Missouri.

CARTOONISTS: Amateur, Professional. Prepare for animation with Max Fleischer's plan. Write Vera Coleman, 60 East 42nd Street, New York, N. Y.

CHALK Talks. Laugh producing program $1.00. Illustrated Catalog 10c. Cartoonist Balda, Oshkosh, Wisconsin.

FREE—Colored Neon Sketches. Big money. Electric sign designing. Complete easy course one book. Free sketches. Details. Write Whitehouse Publications, 1651 East 233rd St., New York 66, N. Y.

55 TYPEWRITERS & OFFICE MACHINES

OPTIMA (formerly Olympia) DeLuxe model portable typewriter, w/auto key-set tabulation, case, New, $55.90. Royal Quiet DeLuxe, New, $89.97. Others, 10c brings catalogue of 1001 bargains. Dealer's Mart, 55 Beverly Road, New Rochelle, N. Y.

TYPEWRITERS. Printing Devices. Office Machines, supplies, appliances. Dixie Graph, King, North Carolina.

TYPEWRITER Ribbons, two $1.00. Sharp black typing. Franklin Specialties, 613 18th Street, Altoona, Pennsylvania.

56 RUBBER STAMPS & OFFICE SUPPLIES

1-2- OR 3 Line rubber stamp with self-inking stamp pad included. $1.00 postpaid. Mishek, Waseca, 3H, Minn.

CUSTOM Made—Deep letters lasting years, strictly finished product, 3 lines $1.00. Extras $.25 Each, Cash. Stamp-It, Box 9032, Chattanooga, Tennessee.

3 LINES, $1.00. Fast service! Also, fine printing, samples, catalogue. Johnson Press, 443 McDonough, Brooklyn 33, N. Y.

57 PRINTING, MULTIGRAPHING, ETC.

QUALITY printing. Booklets, publications, catalogs, stationery. Free catalog. Adams Printers, 30 West Washington, Chicago 2, Illinois.

BUSINESS Letterheads, Illustrated. Catalog; Design Book 10c. Howprint, 723-W Eunice, Webster Groves 19, Missouri.

SEND Us your next printing order. Satisfaction guaranteed. Journal, Stilwell, Oklahoma.

QUALITY Mimeographing, printing. Free catalog. Currier, PSM, New Lebanon Center, N. Y.

1000 NAME And address labels $1.00. With plastic box—3 lines. Handy Labels, 518 Jasperson, Culvercity, Calif.

LETTERHEADS, Cards, Circulars, Halftones, Line Etchings. Jola Press, Box 591, Bristol, Conn.

OFFSET printing, $6.50-1000. 8½x11, 16 lb. National Letters, 1457 Broadway, New York 36.

JOB Printing—Letterheads—Envelopes—Circulars. Printing, 21-S Barclay, Portsmouth, Virginia.

GUMMED Labels, Stationery. Free list. Reed, Box PS-135, Spiro, Okla.

PRINTING by Ace—Samples, Catalog Free. P.O. Box 262, Lyndhurst, New Jersey.

FREE Catalog, business, personal printing. 1000 thermographed cards $2.65. D M Sales, Sebastopol, California.

1000 EMBOSSED Cards, $2.95 Postpaid. Complete Business Printing. Samples. Jaynar, Box 723A, Oak Lawn, Ill.

MAILORDER Dealers—Let us do your printing! Complete line! Special—1000 simulated engraved business cards $3.50. Catalog, Samples 10c refunded first order. Filbrun Printing, Lapel, Indiana.

58 PRINTING OUTFITS, SUPPLIES

DO your own printing. Save money. Simple rules. We supply everything. Print for others; good profit. Raised printing like engraving, too. Have home shop. Details free. Kelsey Presses, V-8, Meriden, Conn.

HOBBY Printers—Join non-profit American Amateur Press Association, 822 South Orleans, Tampa 6, Florida. Hobby papers exchanged.

SAVE Money. Print your own: shipping labels and instructions; postcards; advertisements on shipping and wrapping material, etc. . . . Small, handy, economical ad & label printer. Free information. Earl Brown, Box 1022, San Francisco, Calif.

MAKE your own self-molding rubber stamps and printing cuts. Plexirubber, Argyle 2, Wisconsin.

MAKE Your own cuts. Free literature. Plastarubber, Box 4308-S, Mobile, Ala.

PRINTING Presses, Type Supplies. Lists 3c. Turnbaugh Service, Loysville, Penna.

59 PATENT ATTORNEYS

INVENTORS: Learn how you can protect your invention. A specially prepared booklet "Patent Guide for the Inventor" containing detailed information concerning patent protection and procedure together with "Record of Invention" form will be promptly forwarded to you upon request—without obligation. We are registered to practice before the United States Patent Office and are prepared to serve you in the handling of your patent matters. Clarence A. O'Brien & Harvey Jacobson, Registered Patent Attorneys, 52B-D District National Building, Washington, D. C.

C. A. Snow & Co.—S-427, Snow Building, Washington 1, D. C. Registered Patent Attorneys. Write for information.

REGISTERED Patent Attorney offers services. Sanders, 6430 Evans, Chicago 37, Illinois.

INVENTORS: Without obligation, write for information explaining the steps you should take to secure a Patent. John Randolph, Registered Patent Attorney, 207 Columbian Bldg., Washington 1, D. C.

INVENTION Record form free and "Patent Information Every Inventor Should Have". Carl Miller, Registered Patent Attorney, Woolworth Building, New York.

INVENTORS—Send today for instructive booklet "Patent Protection for Inventors" giving detailed patent information and outlining preliminary steps to take toward patent protection,—also "Evidence of Invention" form. Victor J. Evans & Co., 141-E Merlin Building, Washington 6, D.C.

INVENTORS—If you believe you have an invention, you should find out how to protect it. The firm of McMorrow, Berman & Davidson with offices in Washington, D. C., is qualified to take the necessary steps for you. Send for copy of our Patent Booklet "How to Protect Your Invention." We will also send you an "Invention Record" form. No obligation. They are yours for the asking. McMorrow, Berman & Davidson, Registered Patent Attorneys, 1432 Victor Building, Washington 1, D. C.

"INVENTOR'S Guide" and "Record of Invention" free on request. Frank B. Ledermann, 154 Nassau Street, New York City.

PATENTS—Irving L. McCathran, 316 McLachlen Bldg., Washington 1, D. C. Registered Patent Attorney.

INVENTORS: When you are satisfied that you have invented something of value write me, without obligation, for information as to what steps you should take to secure a Patent. Write Patrick D. Beavers, Registered Patent Atty., 938 Columbian Bldg., Washington 1, D. C.

Copyrighted material

INVENTORS: Learn how you can protect your invention. A specially prepared booklet "Patent Guide for the Inventor" containing detailed information concerning patent protection and procedure together with "Record of Invention" form will be promptly forwarded to you upon request—without obligation. We are registered to practice before the United States Patent Office and are prepared to serve you in the handling of your patent matters. Clarence A. O'Brien & Harvey Jacobson, Registered Patent Attorneys, 52A-D District National Building, Washington, D. C.

INVENTORS, if you have an invention for sale, patented or unpatented, write Institute of American Inventors, Dept. 30A, 631-E St., N.W., Washington 4, D. C.

INVENTORS—This firm is registered to practice before the United States Patent Office and available to assist you in the preparation and prosecution of your patent application. "Patent Protection for Inventors" booklet containing detailed information and steps to take toward patent protection sent promptly upon request. No obligation. Victor J. Evans & Co., 142-E Merlin Building, Washington 6, D.C.

INVENTORS—Send for free patent information book and inventor's record. Registered Patent Attorney. Associate Examiner, Patent Office 1922-1929; Patent Attorney & Advisor, Navy Department 1930-1947, Gustav Miller, 55PSI Warner Building, Washington 4, D. C.

INVENTORS: Without obligation, write for information explaining the steps you should take to secure a Patent on your invention. John Randolph, Registered Patent Attorney, 206 Columbian Bldg., Washington 1, D. C.

INVENTION Record form free and "Patent Information Every Inventor Should Have". Carl Miller, Registered Patent Attorney, Woolworth Building, New York.

INVENTIONS Promoted. Patented or unpatented. A-1 service for inventors since 1911. Write Adam Fisher Co., 5418 Idaho, St. Louis, Mo.

INVENTORS—If you believe you have an invention, you should find out how to protect it. The firm of McMorrow, Berman & Davidson with offices in Washington, D. C., is qualified to take the necessary steps for you. Send for copy of our Patent Booklet "How to Protect Your Invention." We will also send you an "Invention Record" form. No obligation. They are yours for the asking. McMorrow, Berman & Davidson, Registered Patent Attorneys, 1431 Victor Building, Washington 1, D. C.

STOP! Protect and market your invention the inexpensive, easy way. Write—Perrine Products Company, Lawrenceburg 10, Indiana.

MARKET Your invention or product through "Operation Peanuts" groups. Write 7917 W. Third, Los Angeles.

"INVENTOR'S Guide" and "Record of Invention" free on request. Frank B. Ledermann, 154 Nassau Street, New York 38, New York.

PUBLICITY for patents submitted by inventors or firms wishing to license, franchise, or sell patented products. Monthly magazine for manufacturers and distributors. Send large photographs and information to Room 13, Box 2052, Austin, Texas.

PATENT Searches, $5.00, including patent copies. We report directly from Patent Office records. Free protection forms, 48 hour Airmail Service. Patent Service Institute, 945-B Pennsylvania Avenue, Washington 4, D.C.

SEARCHES—Put your patent searches in the hands of a Registered Patent Attorney or Agent as he qualifies to give a worthwhile patentability report. Record of invention form upon request and information on patent protection. Patrick D. Beavers, Registered Patent Attorney, 939 Columbian Bldg., Washington 1, D. C.

SELF-Sell your Inventions, Ideas. V. Young, Box 332, Wadsworth, Ohio.

PERSPECTIVE Drawings to scale for Sales Presentation. Cut-a-Way, see-thru views. Free estimates. Confidential. Write: Visuals, Box 3629, Sarasota, Florida.

PATENT Searches, including copies of nearest patents, $5.00. Reports airmailed within 48 hours. More than 100 registered patent attorneys use my service. For Free invention protection forms, write Miss Ann Hastings, P.O. Box 176, Washington 4, D. C.

PATENT Searches $5.00. 48-hour service. Free Invention Protection forms. Write Raymond L. Smith, Patent Searcher, 622 Sheraton Building, Washington 5, D. C.

PATENT Searches $5.00. 48-hour airmail service. Invention Protection forms free. Write Patent Engineering Service, 711 14th Street, N.W., Washington 5, D. C.

NEW! New! "Gadgets Patents & Invention News." A catalog of Inventions and Ideas for sale. $1.00. Inventors' Service Bureau, 847D Roscoe, Chicago 13, Ill.

MAKE Money! From ideas, patents, "Inventors Guide" Hand Book tells how. Send $1.00. Inventors Creative Service, 354 South Spring Street, Los Angeles 13, Calif.

FREE List of inventions manufacturers have requested. Tell us whether yours is patented, unpatented. Invention Bureau, 208-S Clinton, Oak Park, Illinois.

NO Fees—Inventions patented or unpatented. Industrial Chamber of Commerce, Bloomfield, N. J.

61 INVENTIONS WANTED

INVENTIONS wanted. Patented; unpatented. Tremendous Manufacturers lists. Global Marketing Service, 1404 Mitchell, Oakland 1, Calif.

INVENTORS: Hundreds of manufacturers have requested our assistance in locating marketable new products. Complete information free. Institute of American Inventors, Dept. 30C, 631—E Street, N.W., Washington 4, D. C.

INVENTORS. We sell, promote, market inventions. Write immediately if you have marketable invention. Complete details free. Kessler Corporation, 75X, Fremont, Ohio.

PATENTED; Unpatented. Promotion at its very best. Write for free particulars. Superior Inventions Agency, 338-342 North Rodeo, Beverly Hills, Calif.

FROM center American industry, National Research & Development Corporation seeks patented or unpatented inventions for development or sale. Write for Letter C, Room 324, 11 West 42 Street, New York 36, N. Y.

INVENTIONS Wanted. Patented or Patent Pending. 24 years experience Promoting Inventions. National Service Bureau, 3122 Meramec, St. Louis 18, Mo.

INVENTIONS Wanted. Patented, unpatented. Send for free form "R", literature. Gilbert Adamec, Patent Broker, 3 Park Row, New York City.

CANADIAN Patent Enterprises, 31 Leighland East, Burlington, Ontario, Canada. Canadian, U.S. Invention promotion.

INVENTORS Don't sell your invention Patented or Unpatented until you receive our offer, write Cowgill, Box 298, Marion, O.

CASH Buyers for ideas and inventions. Write National Inventors Institute, 457 Munsey Building, Washington 4, D.C., or 4097 East 131st St., Cleveland 5 Ohio.

INVENTIONS Wanted, Patented, Pending only. Inventors Patent Exchange, Hartford 1, Conn.

NO Fees—Inventions patented or unpatented. Industrial Chamber of Commerce, Bloomfield, N. J.

NEW product ideas wanted by large manufacturer. Up to $10,000 or more prizes, royalties in big contest. For entry blank write Dept. P.S. All-Luminum Products, 36th and Reed Streets, Philadelphia, Pa.

64 MODELS, MODEL SUPPLIES

SHIP and yacht model fittings; blueprints. Send 35c for illustrated catalog #29 listing hundreds of items. A. J. Fisher, 1002-2 Etowah Ave., Royal Oak, Michigan.

SHIP and other scale models. Most complete line in New England. Kits, fittings, plans, books, tools, engines, motors. Illustrated catalog 25c. James Bliss & Co., Inc., Dept. PS, 342 Atlantic Ave., Boston 10, Mass.

SHIP Models and yacht supplies. Complete. Large 68 page catalogue 50c. William Wild, 510 East 11 St., New York City 9.

POWER Models. Unusual steam, gasoline and traction engines, fittings, metals. Anniversary catalog 50c. Charles Cole, Ventura, California.

"ST" Steam engine castings, fittings, boat plans catalog 15c. Ship Models Ltd., 186 Summer, Andover, Mass.

STEAM engines, boilers, castings. Catalog 25c. Anton Bohaboy, 2297 Price, Rahway, N. J.

MAKE your hobby pay. Architectural scale modeling course $5.00. All supplies at discount prices. We build Architectural and Industrial scale models. Penncraft, 1423 Church, Reading, Pa.

65 HOME CRAFTSMAN

LEATHER, tools, lacing, supplies. Free Catalog. National Handicraft, 199 William St., New York 38.

PLASTICS home-craft course for Men and Women. Tells and shows how to make hundreds of fast selling plastics products. All plastics and materials for 23 projects included in course. No special tools needed. Course pays for itself. Write for Free booklet. Interstate Training Service, Dept. D-2-E, Portland 13, Oregon.

LEATHERCRAFT, Metal Tooling, Textile Painting, Beadcraft, Shellcraft . . . many other crafts. Fun, easy, profitable! Free, big, illustrated catalog. Write today, Kit Kraft, Dept. 325, Box 1086, Studio City 1, Calif.

WOODWORKING course for home craftsmen. Twenty-two manuals. Over 1,000 pages. 75 training projects. Only complete home training program available today. Carefully written, profusely illustrated. Covers everything from wood selection to final finishing. Complete instruction in care and use of all hand and power tools. Prepared by expert manual training instructors. Write for free booklet. Interstate Training Service, Dept. G-2-E, Portland 13, Oregon.

BUY wholesale nationally advertised power, hand tools, thousands other products at big discounts. Free "Wholesale Plan." American Buyers', 630-TT Linden, Buffalo 16, New York.

LEATHERCRAFT supplies at lowest prices. "Craftool" Stamps. Catalog 10c. Crown Leather, 24 Spruce Street, New York 38.

NEW! Largest Leather and Craft Catalog! 1000's of items. Send 25c (refunded with first order). Russo Handicraft Supplies, Dept. P7, 245 S. Spring, Los Angeles 12, California

LEATHERCRAFT. Tremendous stock of leather, tools, supplies and kits. In leather business over forty years. Send 10c for big catalog. Sax Bros., 1111 No. 3rd, Dept. PS5, Milwaukee 3, Wisconsin.

101 FULL size patterns. Smart, new, gifts, novelties, lawn figures, shelves, action windmills, alphabets. Plus "Make Money Jig Sawing." Only $1.00. Mastercraft 55S, 7041 Olcott, Chicago 31, Ill.

LEATHERCRAFT. Send 10c for new 60-page catalog of tools, supplies, kits. Including metalcrafts, enameling, ceramics, all other crafts. Complete stock. Reasonable. Since 1910. Sax Bros., Dept. PS-5, 1111 N. 3rd, Milwaukee, Wisc.

BOOKLET—How To Do Precision Work with Hand Electric Saw. $1.00. Ruben Anderson, 934 Maple, Albany, Oregon.

KNOCKDOWN Cedar Chest. Lumber and Veneers. Free Price List. Giles Co., Brownsboro, Alabama.

ART Metal Tooling. Enjoyable, profitable hobby. Big illustrated catalog 10c. Groundmaster, Boulder 8, Colorado.

129 NEW full-size jigsaw patterns. Artist-drawn. $1. Craftplans, 1321-B South Michigan, Chicago 5.

Copyrighted material

LEATHERCRAFT. Everything needed by beginners, advanced hobbyists and professional leatherworkers. Largest stock of supplies in U.S. Moderate-priced tooling leathers, top quality calfskins, tools, supplies, kits. Send 10c for Big Catalog. J.C. Larson Co., 820 S. Tripp, Dept. 5052, Chicago 24.

STYLECRAFT sure fire hits. "Pretraced" leather kits. Handbags, Billfolds, Filigree Belts, over fifty other projects. Patterns on leather. Why trace? Just carve, assemble and lace. Large assortment "Precarved" kits also available. Send 25c for catalog, free folder. Refunded first order. Apache Leather Company, 2804 E. Washington St., Phoenix, Arizona.

DO It yourself plans, helpful hints, trade secrets for the shop and home. Send $1.00 for complete list. Aviron Enterprises, P.O.B. #71-P5 Bay Station, Brooklyn 35, New York.

KNOCKDOWN cedar chest and lumber free price list. Bedford Lumber Company, Shelbyville, Tennessee.

BRASS, Copper—Rods, bars, wire, etc. Catalog free. Groundmaster, Boulder 8, Colorado.

SQUAREKNOTTERS: Make belts, handbags, lanyards, dog leashes, etc. Special offer! Beginner's book, catalog and quality cord samples 15c. P. C. Herwig Co., Dept. P41, 39 Henry St., Brooklyn 1, New York.

LEATHERCRAFT Tools, Leather Embossing Plates, Craft Accessories, Dies. Catalogue 10c. Louis Jones Engineering Company, 1613 Main, Fort Worth, Texas.

PATTERNS Buck, doe, swan, flower, box 35c each. Strother, Box 128DA, Belington, West Virginia.

RAFTER-Rite lays out complete rafters. No figuring, scales or tables required. Illustrated booklet $1.00. Box 291, Worcester 1, Mass.

FREE! Leathercraft catalog. Do It Yourself! Tandy Leather, Box 397BC, Tulsa, Okla.

DOLLARS in the mail for you! Put your ad here and watch orders fill your mailbox. For as little as $9.00 you can advertise your product or service in the classified opportunities columns of Popular Science Monthly. The July issue closes on May 25. Write today for order blank. O. K. Kelly, Classified Adv. Mgr., Dept. 55, Popular Science Monthly, 353 Fourth Ave., New York 10, N. Y.

66 BUILD IT YOURSELF

BUILD an add-on House. Drawings and information $1.00. Box 572, Yakima, Wash.

RADIO Control your garage door from car. Complete drawings, instructions $3.00. Box 851, 5880 Hollywood Blvd., Hollywood 28, Calif. Free Literature.

WHITE Grouting for ceramic tile set dry. "Patent Pending", slow drying, leaves no film $2.00. Prepaid East of Chicago. Talone Tile Grouting Co., 1535 Shunk St., Phila. 45, Pa.

BUILD Inexpensive electric four seater ferris wheel, plans, parts list, complete $1.00. W. Thompson, Hazlehurst, Ga.

BUILD—Save $5000 on $10,000 home. Learn hidden costs, how to buy, save thousands. Also includes 30 ideal plans, elevations, popular homes. 10-day money-back guarantee. 94 page book. $2.50 each postpaid. Owner-Builder Club, 1206 Alta Loma, Los Angeles 46, Calif.

MAKE Alarm clocks operate electrical appliances, simplified instructions, 25c. Clayton, R-5, Cumberland, Maryland.

GEIGER Counter and Metal Detector Kits. Inexpensive, Educational. Free Literature. Electronic Applications, 5024 Lee Hwy., Arlington 7, Va.

STREAMLINED Home construction estimating $1.00. Saves hours. Box 149, Milford, Penna.

FURNITURE . . Wrought iron legs and frames! You assemble . . Free catalogue. Phillips Furniture, East Peoria 6, Illinois.

AIR condition your home for $150 or less. Box 7111, Tulsa 5, Okla.

BUILDING A house? Save over ½. Plans, scale drawings, instructions. $1.00. Lad, Ravencliff, W. Va.

AIR Conditioners—Home, automobile. See Kool Engineering ad page 58.

PATTERN Special: Fullsize, royal coach, Columbus ship, planter & jigsaw. Four patterns, prepaid $1.00. George Andrus, 1945 Fremont Ave. South, Minneapolis, Minnesota.

POWER Lawn mowers, parts, price list. Free literature. Klingsicks, Kingfisher, Okla.

BECOME Charter member in National "Do-It-Yourself" Association. Receive, hang diploma honoring and acclaiming your "do-it-yourself" accomplishments as construction engineer. Extra to members: discounts in project, tool purchases. Send only $1.00 for membership diploma. Jen-Re Distributors, 93-06B Corona Ave., Elmhurst, N. Y.

BUILD Your own electric automatic garage door opener! Complete kits or parts. Details, Box 71, Tenafly, New Jersey.

"CONCRETE Block Homes." 32-page booklet on how to build. $1.00. H. C. Lightfoot, Civil Engineer, Richboro, Pa.

BAROMETER Movements. Make own case. Free information. Abtek, 1075 Third Avenue, New York 21.

HOME Appliance Fix-It Manual. 280 pages crammed with pictures, diagrams and directions for repairing toaster, refrigerator, heating systems, vacuum cleaner, motors, iron, fans, washer, broiler, more! Thirty chapters, fully indexed. Hard-paper edition of $4.95 book! Send only 99c to Popular Science, Dept. P555, 353 4th Ave., N. Y. 10, N. Y.

67 OLD GOLD, JEWELRY, WATCHES, ETC.

COSTUME Jewelry supplies. Catalog and Samples. 35c. Largest line in America. Milady-Fair Co., G.P.O. Box 1328, New York City 1.

HIGHEST Cash For Old Gold, Broken Jewelry, Gold Teeth, Watches, Diamonds, Silverware, Spectacles, Platinum. Free information. Satisfaction Guaranteed. Rose Refiners, Heyworth Bldg., Chicago 2.

FREE Sample pair of Earrings shows you how easy it is to make beautiful costume jewelry. Over 5000 styles listed in New Catalog—25c. Barry's, 179 Ardsley Court, Newark, New Jersey.

RHINESTONES, Jewelry settings, copper enameling. Sample Earring Kit and Catalog 25c. Catalog only, 10c. J & M Novelties, Dept. CE-4, Griffith, Indiana.

USED And new watches $2 up. List 10c. Southern Watches, Gray, Georgia.

10 SWISS watches $18.00, catalog 10c. Berkowitz, 1150 Castlehill, New York 62.

WHOLESALE Jewelry, watch folders free. Updegraff's, 731 Oakhill Ave., Youngstown, Ohio.

68 TOBACCO & PIPES

PIPE Smokers! Cigar Smokers! Free illustrated catalog offers fabulous savings on choice imported and domestic pipes, cigars, tobaccos, supplies. Write Wally Frank, Dept. 26, 150 Nassau Street, New York 38, N. Y.

69 FOR THE HOME

NEW Clothes-Line Pulley—Machined aluminum casting; rust-proof; permanent lubricating bushing; smooth, quiet operation. $1.00 plus 10c handling. Rainbow Products, 37 Elmwood Street, Naugatuck, Conn.

FOAM rubber furniture cushions—Factory seconds 50% discount. Free catalog. Perma-Foam, 140-A Main Street, East Orange, New Jersey.

PAINT, Factory prices. Free catalog—Shribers, 1920 Beaver, Pittsburgh 33, Pa.

69A AIR CONDITIONING

$34.50 EVAPORATIVE air conditioner cools one to three rooms. Easily installed in window in minutes. Beautiful hammertone finish. Balanced fan and powerful 1/25-hp, 115-v AC shaded pole motor deliver 1500 cu. ft. cooled, filtered air per minute through adjustable louvers. Pure aspen filters; brass metering valve; toggle switch; pipe connections; 25' tubing. Send $5.00 m.o. or check; balance COD plus shipping. Assembled price $34.50 fob Dallas. Supply limited; order today from Weather Merchants, 2913-S Gaston, Dallas Texas.

70 OF INTEREST TO WOMEN

MAKE money addressing envelopes sparetime. Glenway, 5713 Euclid, Cleveland 3, Ohio.

MAKE extra money. Address, mail postcards. Spare time every week. Write Box 14, Belmont, Mass.

MAKE Big Money At Home! Invisible Reweaving pays up to $10.00 profit in an hour. Make tears, holes disappear from fabrics. Constant demand from laundries, cleaners, homes brings steady earnings. Details Free. Fabricon, Dept. D, 8342 S. Prairie, Chicago 19, Illinois.

GROW Mushrooms. Cellar, shed, and outdoors. Spare, full time, year round. We pay $3.50 lb. We paid Babbitt $4,165.00 in few weeks. Free Book. Washington Mushroom Ind., Dept. 181, 2954 Admiral Way, Seattle, Washington.

DID you know? "Miracle Maid" hung on the overflow pipe in the toilet tank, makes ugly stains and corrosion disappear in toilet bowl and tank. Controls water odors, harmless to humans, bowl, metals, or septic tank. Inexpensive. Will last a year. Available at $1.25 from "Miracle Maid," 5248 Louisiana Ave. North, Minneapolis 22, Minn.

ONLY $1 quick—secure safety door lock. Also profitable home crafts catalog 10c. Box 86, Richmond Hill 18, N. Y.

WRITE Your own will. Complete instructions, forms. $1.00. L. C. Hannon, P.O. Box 4891, Kansas City, Mo.

71 FOR SALE MISCELLANEOUS

BRASS Sump Pumps $46.00. Free literature. Ronald Milne, 538 Ridge Road, Munster, Indiana.

NAVY Target—balloons, inflate to 6 feet $1.00. 1½ brass compass $1.00, Army sewing Kits complete with scissors $1.00. H. Smith, South Lansing Box 25, Lansing 9, Michigan.

POCKET Adding machine from Germany. Adds, subtracts to 999,999,999. Handy for shopping, homework, farmers, businessmen. $5 from Somerset Overland Co., James Street, RD6, Somerset, Pa.

CLOSE Out—Miscellaneous mailorder booklets. Information, samples $1.00.—Corlin's, 4741 Bernard, Chicago 25, Ill.

THROW Rugs. Wool, Bound. 20"x36" $2.15, 18"x27" $1.15. Postage paid. Griffe Enterprises, Box 91, Station D, Toledo, Ohio.

SAVE, Buy surplus Direct from Government. Our Publication "Surplus Sales" lists items for sale by US Government. Machinery, tools, Radio Photographic Equipment, Hunting camping fishing sporting equipment, binoculars, Hundreds others. Price $1.00. Box 169CAB, East Hartford 8, Conn.

HAMMERED Gold embedded in plastic jewelry. Ladies' pin $2.00. Men's tieclip $3.00. State color. Shipler's, 26315 Gading Road, Hayward, Calif.

72 WANTED TO BUY

SCRAP Mercury (Quicksilver) containers supplied. Tantalum—Bismuth—Tungsten. Metallurgical Products Co.—Established 1909, 35th & Moore Streets, Philadelphia 45, Pa.

QUICKSILVER, Sterling, Silver Solders, precious metals. Mercury Terminal, Norwood, Massachusetts.

CASH For old 35 mm silent movies. Studios, Box 382, Lima 2, Ohio.

75 TATTOOING SUPPLIES

TATTOOING Outfits, licensed course. Brochures 25c. Zeis, 728 Leslie, Rockford, Illinois.

76 DRAWING, SUPPLIES & EQUIPMENT

TILT Top adjustable height drafting table $35.00. Plans $1.00, Hardware $5.00. Specht, 2100 N. Fitzhugh, Dallas 4, Texas.

Copyrighted material

77 GEIGER COUNTERS & TREASURE FINDERS

TREASURE Hunters! New 11-pound featherweight Model 101 locator for gold, silver and minerals. Money-back guarantee best available. Also Geiger Counters for uranium prospectors. Complete information free. The Goldak Company, 1540 W. Glenoaks Blvd., Glendale 1, Calif.

GOLD, Silver, Metal Detectors, Geiger Counters for Uranium, Mineralights. Sensational new fully guaranteed models. None Finer Information Free. Detectron Corp., 5528 Vineland Ave., North Hollywood, California.

"SNOOPER" Geiger counter. Only $29.95 complete. Super-sensitive. Pocket size. Find a fortune in uranium. Order now. Send $5.00, balance c.o.d. Money back guarantee. Free catalog-Scintillator and larger uranium and metal detectors. Precision Radiation Instruments, 2235CPS So. LaBrea, Los Angeles 16, California.

SELECTIVE metal and mineral detector. Revolutionary design. Distinguishes metals from black magnetic sands. Readily detects metals under salt water. Also Geiger Counters. Free literature. Gardiner Electronics Company, 2545 E. Indian School Rd., Phoenix, Arizona.

URANIUM Prospectors follow system of those who sold claims for millions. Contains practical knowledge, equipment, localities, legal references. Send $3.00 (no checks). Uranium Consultants, 34 Park Row, New York 38.

URANIUM Instruments eight complete lines. Large stock for immediate delivery, catalogues. Dealerships open, tremendous profits. Micromatic Associates, 2322 W. Whittier Blvd., Montebello, California.

GEIGER Counters. Free Literature. Amerlabs. 471 Clifton Avenue, Newark 4, New Jersey.

GOLD And Silver indicators, price $30. Box 51, Plant City, Fla.

URANIUM, Gold, silver treasure. New, power-packed, highly sensitive Metal Detectors, Geiger Counters and Mineralights, Kit and Assembled Models from $12.50. Lightest weight, guaranteed, free literature. Electronic Applications, 5024 Lee Highway, Arlington 7, Va.

25 x 38 URANIUM Areas map. 9 Southwest states. $3.00 postpaid. Prospector, Box 1342, San Francisco 1, Calif.

TREASURE — Metal — Mineral locators M-Scope type. Latest electronic design $75.00 up. Geiger counters—Scintillators—Mineralights for uranium prospecting $35.00 up. Fully guaranteed. Monthly payment plan available. Books "How to Be a Successful Uranium Prospector" — "For Fun and Profit"—Literature free upon request. Fisher Research Laboratory, Inc., Palo Alto, Calif.

ANY Type Scintillators Geiger Counters, Metal Locators, Mineralights, free catalog. A. Stiehler, 125 W. Adams, Detroit 26, Michigan.

GEIGER counters $5.00 monthly! Write NEPD Incorporated, Box 64575, Los Angeles 64.

"URANIUM Prospectors Handbook" $1.00. Six radioactive ore specimens, boxed, $2.50. Postpaid. Raylab, Box 534, Reseda, California.

URANIUM Found everywhere! Get the finest Geiger Counter available. Eliminates earphones, tests batteries. Audible speaker gives loud alarm. Rugged construction for rough field use. $159.50 send $35.00, Balance C.O.D. Money back guarantee. Free catalog. Monarch Instrument Company, 6872 Lankershim, North Hollywood, Calif.

NOW. Scintillation counter blueprints, instructions, $4.95. Send today. Glaze, 6908 Creiger Ave., Chicago 49.

GEIGERS—Scintillators. New instruments never before advertised. Illustrated folder. Scientific Equipment, 5438 Lowell, Indianapolis 19, Indiana.

SIMPLE Geiger Counter plans $1.00. Complete Geiger and Scintillator kits $25.00 up. Box 1811, Tulsa 3, Oklahoma.

GEIGER counter. Build your own under $15. Sensitive, economical. One flashlight cell operates for weeks. Send $1 for plans. Free uranium sample included. Phillips, 14017 Ainsworth, Gardena, Calif.

GEIGER Counters, Kits and assembled models. Save dollars, buy in kit form. All include radioactive sample. Free details. Geiger Counters, Box 111, Sta. A, Hartford 6, Conn.

URANIUM Detection instruments. All newest, finest, scientifically engineered units. Highest sensitivity. Popular priced. Unconditionally guaranteed. Free prospecting information, maps and techniques. Universal Atomics Corp., Dept. PS5, 527 Lexington Avenue, New York City.

"HOW To Make Money Prospecting for Uranium." Free booklet. Send 20c for handling, postage. Geiger Co., 195-S5, Sackett Street, Brooklyn 31, N.Y.

78 WATCH REPAIRING

WATCH and clock repairing books for hobbyists. Free information. North American, Dept. 25-E, 2320 N. Milwaukee, Chicago 47, Illinois.

AMATEUR—Professional Watchmakers' Supplies; Correspondence instruction; repairing. Bengal Company, Culver City, California.

79 MISCELLANEOUS

BUY Wholesale thousands nationally advertised products at big discount. Free "Wholesale Plan." American Buyers', 630-EE Linden, Buffalo, New York.

MAKE extra money. Address, mail postcards. Spare time every week. Write Box 14, Belmont, Mass.

OUTDOOR Toilets, cesspools, septic tanks cleaned, deodorized with amazing, safe, harmless powder. Easy, economical to use. Saves digging, pumping. 150,000 customers guarantee satisfaction. Details Free. Burson Laboratories, Dept. O-53, Chicago 22, Ill.

HAWAII—Colorful picture post cards, twelve different $1. Star Photo's, Box 17(B), Nyack, N. Y.

WHOLESALE! 12,000 nationally famous products. 30-80% discounts! "Wholesale Trade Secrets" Catalog. Sensational business Plans free. Derrom Company, 21-18 White, Paterson 23, New Jersey.

SEND 50 Cents to Walter Michaels, Cedar Lane, Farmington, Conn. for an attractive home made paperweight postpaid.

AMAZING Early Christian emblems gift charts $1.10. Hinkles 9, Dayton, Virginia.

RECEIVE Hundreds samples, magazines, offers. Large list 25c—Mail Center of Detroit, 17587 Hull, Detroit 3, Mich.

RECEIVE Magazines, samples, catalogues. Mails from everywhere. Offers, hundreds. Get listed 25c. Rorick, Box 86-M, Cincinnati 26, Ohio.

300 BIG Mails guaranteed, samples, offers, plans, propositions, 12 months listing. $1.00 (refundable). Wright Publications, 2276 Hubbard, Memphis 8, Tenn.

GROW Mushrooms. Cellar, shed, and outdoors. Spare, full time, year round. We pay $3.50 lb. We paid Babbitt $4,165.00 in few weeks. Free Book. Washington Mushroom Ind., Dept. 182, 2954 Admiral Way, Seattle, Washington.

BIG interesting mails three months 25c, year $1.00. Harvey Teeple, Decatur, Ind.

UNIQUE Booklet "Free on Request." Where to get over 100 free books, samples, etc. Send 25c. Jerome, 641-B North Keystone, Burbank, Calif.

SECRETS mysterious Africa! Terrific! Two coupons to Delta, British Post 189, Tangier, Morocco.

80 PERSONAL

"HOW Can I Find Out?" You Can! Information confidentially developed. Any matter, person, problem. World-wide. Officially licensed. Established 1922. William Herman, 170 Broadway, New York.

DETECTIVE'S Opportunities. Detective particulars free. Write. Wagoner, P-125 West 86th, New York 24.

MAKE extra money. Address, mail postcards. Spare time every week. Write Box 14, Belmont, Mass.

LATEST Methods treating piles, fistula, colon-stomach disorders. Write for free book. McCleary Clinic and Hospital, E-144, Excelsior Springs, Mo.

PSORIASIS Victims: Hopeless? New Discovery! Free Trial Offer. Write Pixacol, Box 3583-S, Cleveland, Ohio.

REMAILS. Chimley Rock area 25c. Garson Lindsay, Spindale, N. C.

HAVE Your letters mailed from glamorous California for 20c. $3.00 monthly address charge. Ideal, 4644-c Geary, San Francisco 18, Cal.

BORROWING By mail. Loans $50 to $600 to employed men and women. Easy, quick. Completely confidential. No endorsers. Repay in convenient monthly payments. Details free in plain envelope. Give occupation. State Finance Co., 323 Securities Bldg., Dept. F-227, Omaha 2, Nebr.

DIVORCE, Alimony, legal information, $5.00. Gordon's, 439 Lee, Hampton, Va.

YOUR Black & white negative enlarged to 11x14, suitable for framing. $1.00. Morin 14 Orchard Rd., Windsor, Conn.

LETTERS Remailed 25c. 5 for $1.00. Sunday classified $1.00. Bon-Jon Service, 3112 N. Richards, Milwaukee 12, Wisc.

SOCIAL Letters remailed 25c. Receiving—Forwarding $5.00 month. Confidential. Timerman, 3832 Glenwood, Cleveland 21, Ohio.

"PSYCHIC Dominance. Rule others with your thoughts." $2. Delmar Wisdom, 833 Sunnyside, Chicago 40.

HOLLYWOOD, Los Angeles, remails 25c. Hughes, 820 No. Naomi, Burbank, Calif.

LETTERS Re-mailed 25c. Volume, Monthly Rates. Andrews, 17311 Victory Blvd., Van Nuys, California.

ARTHRITIS relief from soy beans. Not a drug or medicine. Nueblings-S, Sicklerville, New Jersey.

"INTERESTING Mails"—25c keeps your mail box full three months. Bentz, Desk-K/94, Chatawa, Mississippi.

HOW can I get out of debt? Stop that garnishment? Save my job? You can! Free confidential details. E. B. Borum, 411 West Walnut, Kalamazoo, Mich.

NEW Jersey Remails 25c. Private address available. Low monthly Rates. Thoden, 121 37th St., Union City, N. J.

LOSING your hair? Send for "The Truth About Hair Care." No obligation. Damon, 123 West 65th, New York City.

INFORMATION Furnished by Research Specialist—Edna Whiting, 929 East Washington Blvd., Fort Wayne 4, Indiana.

HAND Guide. Corrects your Penmanship in 10 hours. Write Perfect Penmanship, Box 665-35P, St. Louis, Missouri.

MEXICAN Law. General Practice Attorney, 1203 Arizona Street, El Paso, Texas.

CALIFORNIA Remails. Receiving—forwarding. Reasonable. Hedgpeth, Box 830, Alhambra 24, California.

THINK Yourself into health and happiness. Create satisfying, harmonious environment through low cost Home Study Course. Learn the secret of Prayer that works, through constructive thinking. Without obligation send for Free Trial Lesson. Ontology Foundation, Homewood, Illinois.

MINNEAPOLIS! Remails 25c. Employment columns $1.00. Ted Nordin, Jr., Mendota, Minnesota.

UNHAPPY? Restless? Dissatisfied? Uncover your hidden abilities, aptitudes, personality with psychological testings. Do tests at home. Receive complete analysis prepared from tests by professional psychologists. Low cost, confidential. Write Psychologic Testing Institute, Dept. 261, 201 N. Wells St., Chicago, Illinois.

MEXICAN Legal Matters—A. Espejo, Box 234, Hermosillo, Sonora, Mexico.

DOLLARS in the mail for you! Put your ad here and watch orders fill your mailbox. For as little as $9.00 you can advertise your product or service in the classified opportunities columns of Popular Science Monthly. The July issue closes on May 25. Write today for order blank. O. K. Kelly, Classified Adv. Mgr., Dept. 55, Popular Science Monthly, 353 Fourth Ave., New York 10, N. Y.

Copyrighted material

REVOLUTIONARY NEW SELF-CONTAINED, COMPLETE SPRAY KIT MAKES PAINTING EASY!

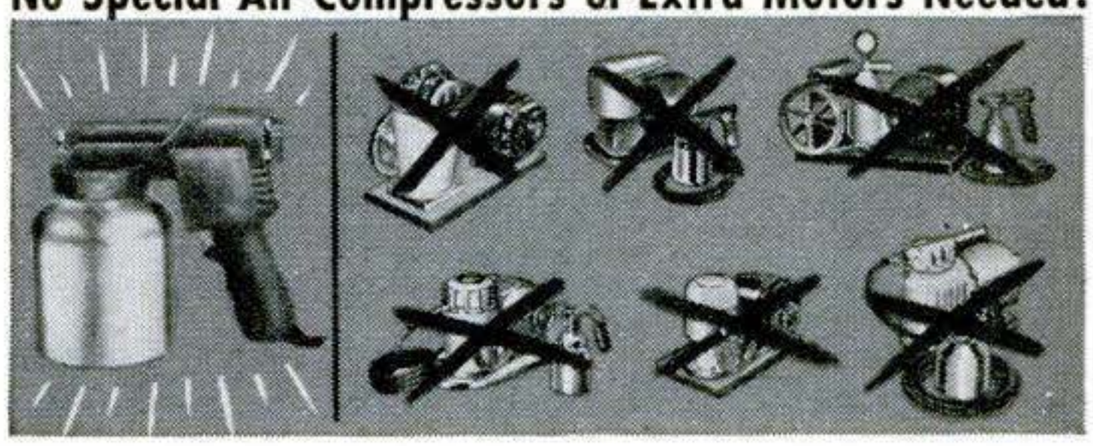
Now Spray Anything In Minutes With Amazing New *Super Jet!*

Nothing To Do But Pull The Trigger! Astonishing New Principle Requires No Air Compressor, No CO_2 Cartridges, No Tank! *Nothing Extra To Buy!*

Simply plug Super Jet into any 110 Volt A.C. electrical outlet and start spraying! The *patented* precision pumping mechanism allows you to spray from *open* or *closed* containers; spray paints, enamels, varnishes, shellacs, lacquers, water, oil, insecticides, fungicides, even water soluble fertilizers! And amazing Super Jet operates as well on a thimbleful or a barrelful of spraying liquid!

All metal Super Jet contains NO BREAKABLE PLASTIC OR GLASS parts! Lightweight and rugged, it sprays as well as professional equipment costing up to *3 times* as much! Unlike cumbersome professional equipment or impractical toy-like spray guns, you can use Super Jet every time you have *anything* to paint or spray. It's so simple to use, so easy to clean. Super Jet pays for itself!

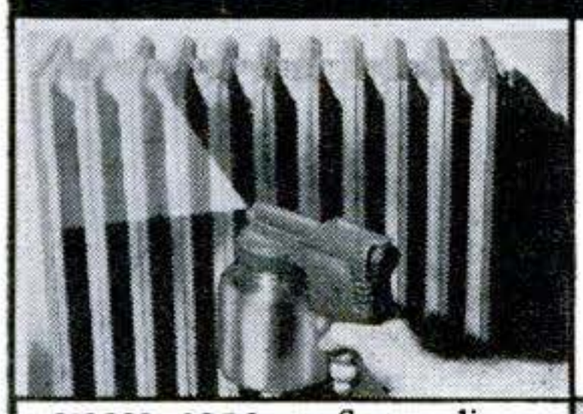
No Special Air Compressors or Extra Motors Needed!



No Spraying Experience Needed To Operate Easy-to-Use SUPER JET!

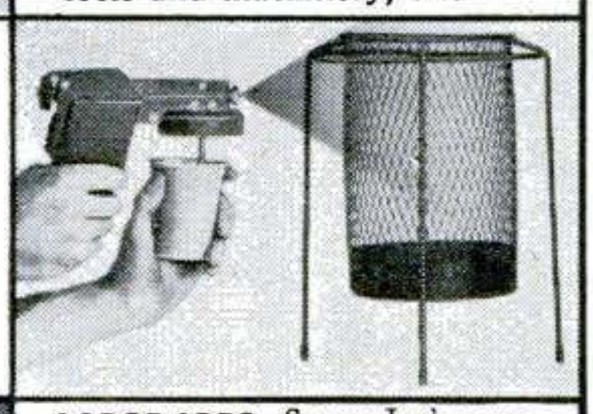
Independent laboratory tests *plus* consumer testimonials show that *Super Jet* is the most versatile spray unit on the market! Super Jet is so rugged, so efficient and economical to use that Army, Navy and Air Corps used them. Thousands in use today in homes and industry. Simple to operate, non-clogging and easy to clean, amazing new Super Jet Spray Kit saves time, work, money!

3 DIFFERENT WAYS TO SPRAY WITH SUPER JET!



AVERAGE JOBS — Aluminum jar holds enough material for average paint jobs . . . chairs, tables, shelves, refrigerators, radiators, storm windows, screens, metal furniture, etc. Also perfect for spraying insecticides, liquid fertilizers, removing wall paper, lubricating tools and machinery, etc.

SMALL JOBS — Spray direct from container! Excellent for small spray jobs; painting garden tools, toys, metal grill work, flower pots, lamps, and hobby projects. Also permits spraying deodorizers or disinfectants right from bottle! This feature saves money too. Sprays last drop of paint or spray material!



LARGE JOBS—Super Jet's revolutionary principle permits *continuous* spraying direct from large containers of spray material. Special "long-distance" tubing eliminates refilling. No expensive tanks or compressors to buy! Spray walls, floors, ceilings, gardens, lawns, etc.

AUTOMATIC FILTER!

NO MORE STRAINING!—Super Jet comes equipped with an ingenious, fine screen, metal filter that *automatically strains* paint and spray materials. Dirt, pigments, lumps, paint skin, etc. are automatically filtered out and prevented from clogging the gun!

SELF-CLEANING!

NOTHING TO TAKE APART TO CLEAN!—Super Jet cleans itself. Simply spray solvent through the gun for 20 seconds and Super Jet is clean and ready for another job . . . for a different spray material . . . or for storage! No work! No time wasted!

FREE! Mail Coupon TODAY and get *Free* 5-piece pocket Screw Driver Set.

EXTRA BONUS! Send $29.95 in full payment of your SUPER JET SPRAY KIT and receive as extra bonus tool kit pictured! Tempered steel 6 inch wrench, 7 inch pliers, screw driver blades and chuck, complete with carrying case. Not a toy!

A COMPLETE SPRAY KIT! Only $29.95-$1. a week!

- NEW SUPER JET SPRAY GUN
- POLISHED ALUMINUM JAR
- AUTOMATIC PAINT STRAINER
- 15 FT. DISTANCE TUBING
- 23 FT. NEOPRENE CORD SET
- GEM NOZZLE DISC
- WALL CHART & INSTRUCTIONS
- STEEL CARRYING CASE

PLUS Your Name in 23 KARAT GOLD written on Super Jet Carrying Case

FULLY GUARANTEED! 10 Day Free Trial *plus* 90 Day Guarantee Against Mechanical Defects.

POWER PRODUCTS, INC., 175 E. 87th St., N. Y. C.

MAIL COUPON TODAY FOR 10 DAY FREE TRIAL

POWER PRODUCTS, INC.
Super Jet Division. 5-D2
175 E. 87 St., New York 28, N. Y.

Please send amazing new SUPER JET SPRAY KIT. I must be completely satisfied or I may return within 10 days for full refund. I am using payment plan checked below.

☐ Enclosed is $29.95 in FULL PAYMENT including postage. Be sure to send my FREE GIFT *plus* EXTRA BONUS for full payment.

☐ SIMPLIFIED BUDGET PLAN. Enclosed is $3.00. I will pay balance of $26.95 at $1.00 per week plus postage and small credit service charge. (No credit charge if paid within 60 days.) Be sure to send my FREE GIFT.

YOUR NAME will be written in *23 Karat Gold* on your kit. *Please Print Carefully.*

NAME .....

ADDRESS .....

CITY ..... ZONE ..... STATE .....

Copyrighted material

UNMATCHED FOR **low cost** TRANSPORTATION

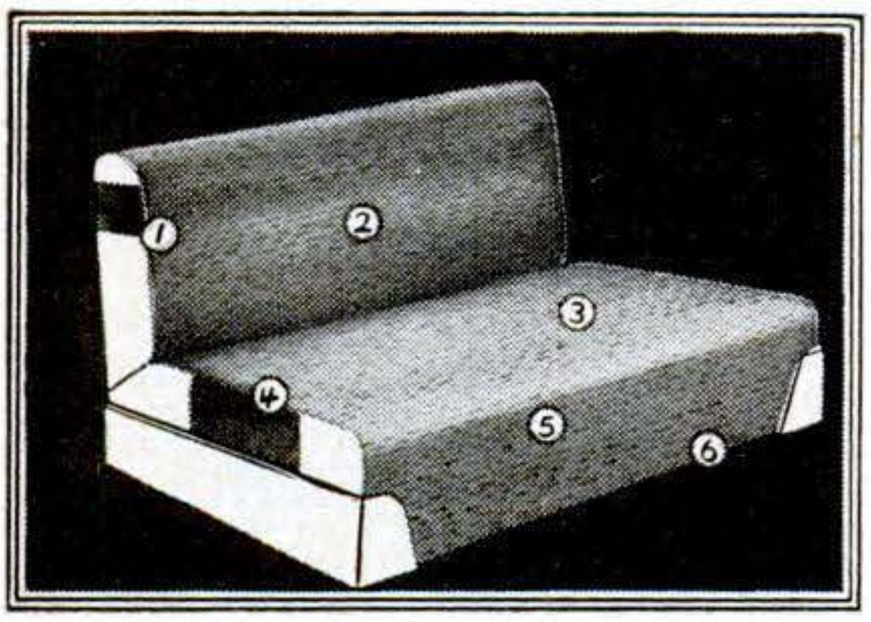
Cushman PACEMAKER

CUSHMAN is tops . . . 75 miles per gallon . . . ¾¢ per mile total operating cost . . . goes everywhere.

Ask your nearest dealer for FREE demonstration or write for illustrated literature.

CUSHMAN MOTOR WORKS, inc.
954 No. 21 Lincoln, Nebraska

Sturdy, Long-Life Auto Seat Covers made in heavy-duty upholstery fabric



You'd expect to pay up to $12 for the luxury fabric alone!

1. Flex-O-Snap fits any car
2. Tight-weave, Sturdy Fabric
3. Never Tears—Last Years!
4. Tuck Flap Holds Seat Down
5. Water & Grease Resistant
6. Nylon Thread Lockstitch

NOW: 3.99 each (2 for 6.98)

DIRECT FROM FACTORY TO YOU!

Because we purchased thousands of yards of genuine upholstery fabrics far below wholesale cost—because we produce our own seat covers in our own factory—because we use no middlemen but sell direct from factory to you . . . that is why this amazing value is possible. Yes! Only **3.99** each for these smart, durable covers! Nothing skimpy about 'em—we use 3 full yards of heavy duty upholstery fabric, the kind you'd pay up to $4 a yard for! Install in a jiffy! Fit **ALL** cars—from Chevrolet to Cadillac—'36 to '55. Sanforized, too, to prevent shrinkage. In 3 smart colors: Blue, Green & Gray. Front seat in 2 styles: A—Solid-back seats for 4-door models. B—Split-back seat for 2-door cars. Either type front seat—**3.99** ea. **6.98** for front **AND** rear. **FREE:** $1.98 Poly-Sheen auto cleaning cloth if you buy **BOTH** front & rear. Sent prepaid. If you order C.O.D., you pay 49c postage. No risk—try for 5 days on trial. Money back guarantee. This bargain won't last forever—**RUSH** your order **NOW!** Be sure to state seat style (split or solid) **and** color desired. Write **TODAY** to:

MOTO-MATIC CO., Dept. 7-E-151, 352 Fourth Avenue, New York 10, N.Y.

Gov't. Surplus DUPONT NYLON CORDS
Below Mfrs. Cost • Outwears Ordinary Cord 10 to 1

Light, strong, durable, quick-drying. Will not rot or mildew. Ideal for indoor or outdoor use. Camping, boating, hunting, clothesline and venetian blinds. Perfect for tent ropes, light anchors, deer cord, trot lines, crabbing, etc.

NYLON BRAIDED CORD

1/16" dia., 100 lb. test, white, per ft. 1½c
1/8" dia., 375 lb. test, white, per ft. 2c
3/16" dia., 550 lb. test, olive drab, per ft. 2½c
In 100, 200, 300, 400, 500 ft. and over lengths.

NYLON BRAIDED LINE

¼" dia., 1000 lb. test, olive drab, per ft. 3c
In 30 and 50 ft. lengths.

NYLON ROPE

⅜" dia., 2,700 lb. test. Any length to 1200 ft. per ft. 16c
7/16" dia., 3,800 lb. test. Any length from 20 to 120 ft., per ft. 18c

NYLON FISH LINE

Proven best by experienced fishermen. Heat stretched. Will not kink, twist or unravel. 25 lb. test. 300 ft., reg. $1—per spool NOW 50c

NYLON WEB STRAPS
with sturdy steel buckle

Perfect for luggage straps, car tow-lines, car carrying straps, boat trailer straps, etc. Tie heavy equipment and machinery with greater ease and safety . . . at far less cost. Just the thing for the garage or workshop.

1" wide, 3,000 lb. test, per foot 10c
1¾" wide, 6,000 lb. test, per foot 16c
In 5, 6, 8, 10, 12 foot lengths.

Minimum Order $1.00. Send Check or M.O. C.O.D. plus fee. Money Back Guarantee.

SCOTT-MITCHELL HOUSE, INC.
Dept. NY-48, 611 Broadway New York 12, N. Y.

QUALITY BOAT KITS
Write for FREE literature DEALER INQUIRIES INVITED
PENNEY WOODCRAFT INDUSTRIES
1301-09 Ottawa Ave., Dept. P-55 Defiance, Ohio

JITTERBUG • CATCHES MORE FISH

Noisy surface bait. World's best hooker—day or night. Gurgling, paddling action of the double-lobed lip makes fish strike hard. 5/8 oz. or 3/8 oz. or 1/4 oz. spinning size $1.25. Musky size $2.00.

FRED ARBOGAST CO. INC., 2345 W. North St., Akron 3, Ohio

FREE WRITE TODAY FOR YOUR BIG FREE ARBOGAST COLOR CATALOG—FULL OF PICTURES OF CATCHES

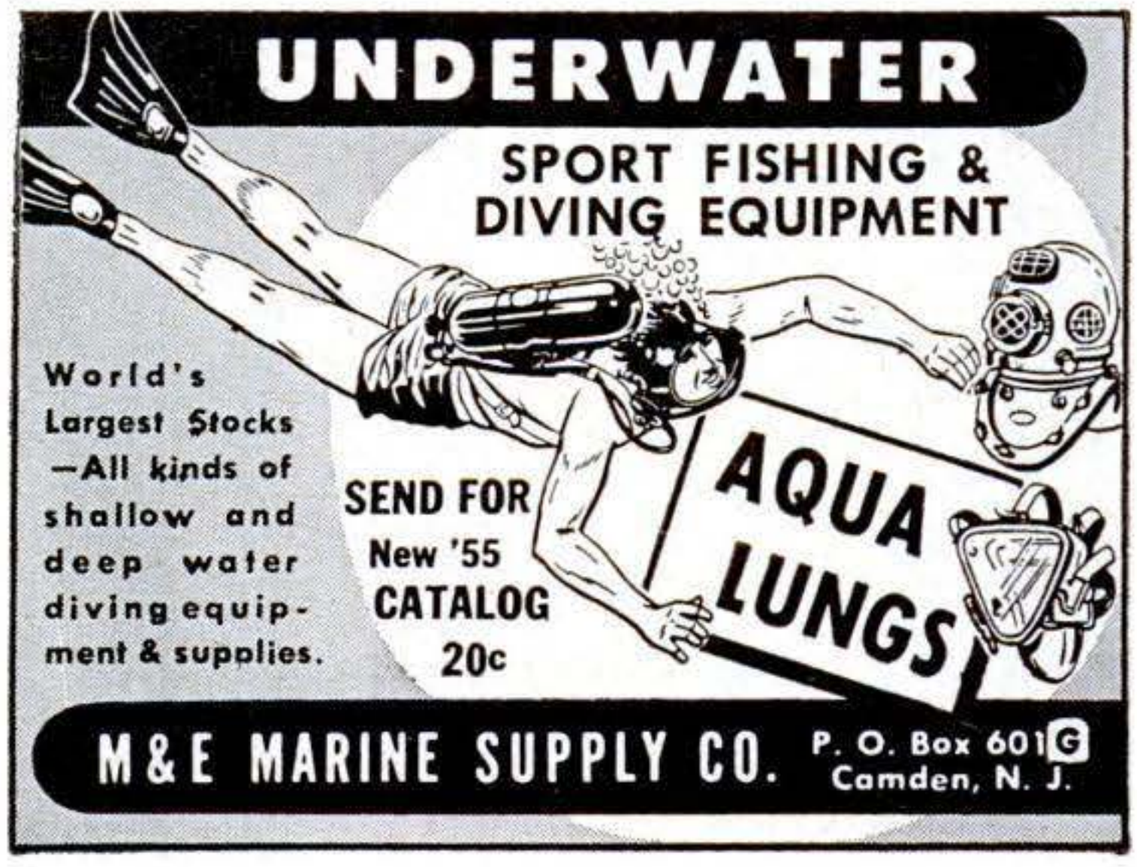
Also ADULT 2 Passenger "ESHELMAN" SPORT CAR, **1/5** The Price of any other Auto 70 Miles per Gal. Free Catalog

ESHELMAN 70 MILES PER GAL. GAS
CHILD'S AUTO WITH MOTOR

STURDY, SAFE FOR KIDS.
Commended by "Parents Magazine"
Write for FREE Catalog.

Eshelman, Dept. MC-45
109 Light St.
Balto. 2, Md.
333 N. Michigan Ave.
Chicago 1, Ill.
6087 Sunset Blvd.
Los Angeles 28, California

Pat. Pend.

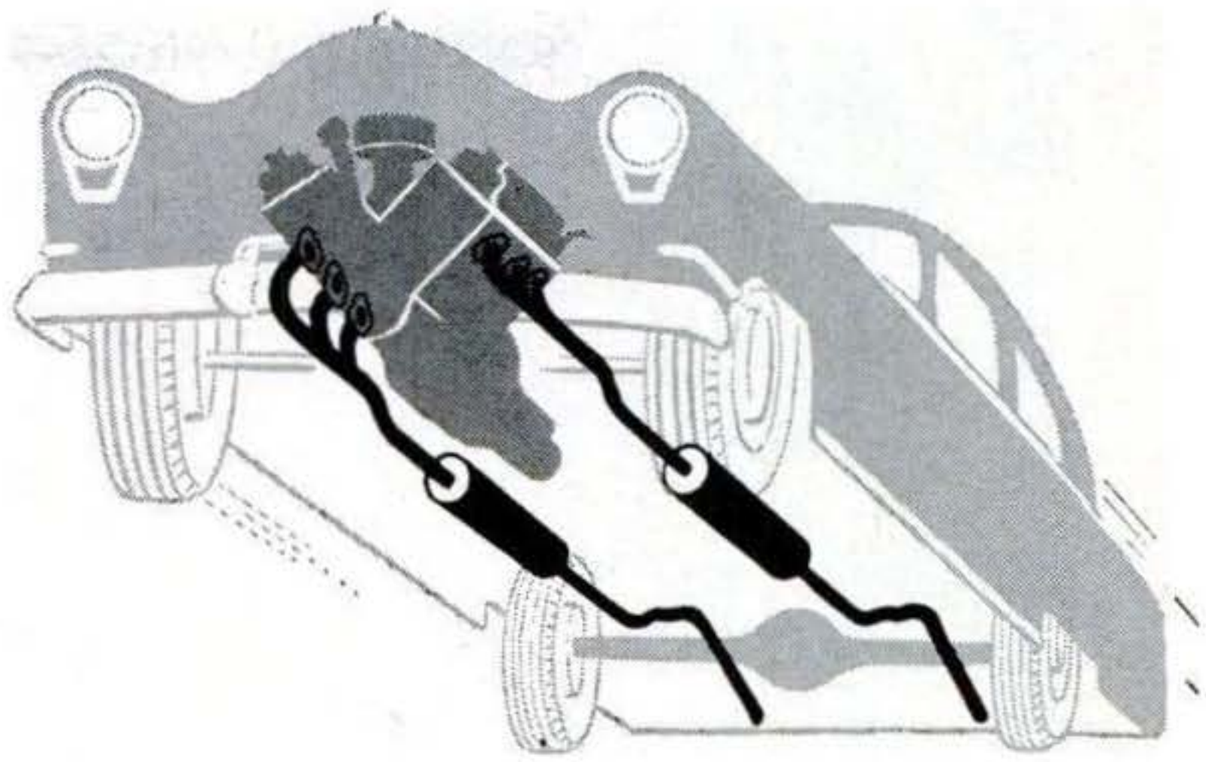


Copyrighted material

GET 15% MORE MILEAGE, 16.4% MORE HP

with DYNATONE DUALS AND HEADERS

Car factories such as Ford, Cadillac and Mercury find that duals are necessary to get the utmost in power, speed and gas economy from today's high-compression engines. Duals eliminate the excessive back-pressure built up by conventional exhaust systems. Now you can get the same results on your car with a Dynatone dual or header system. Your V8 will have improved carburetion, faster pick-up, greater performance. Dynamometer tests show that Dynatone duals deliver 11.7% more hp at 60 mph—headers 16.4% more at 70 mph.



Dynatone duals and headers are precision made for *your* car, and will fit either the car factory or the Hollywood type of mufflers. Sets available with or without Dynatone—the muffler that's engineered, not packed. If you like a deep, mellow tone muffler, you can't beat a Dynatone, whether you use it singly or in pairs.

ASK FOR DYNATONE DUALS AND HEADERS AT YOUR FAVORITE DEALER OR AUTOMOTIVE STORE—OR WRITE

DYNATONE®

Dept. 4E

619 Smith Street, Toledo 1, Ohio

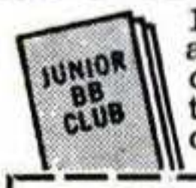
Daisy Gun Book

Ready for Boys and Dads

DERINGER PERCUSSION POCKET PISTOL (Only about 4" long; one of many famous guns shown in this book)

You'll enjoy seeing the historic rifles, pistols pictured in *gun section* of Daisy's new 128-page pocket-size Gunbook! A gun collector *authority* wrote each gun story. *Also* contains western lore, ranch-cowboy cartoons, jokes, comic strips *plus* latest Daisy Air Rifle Catalog. *All* only 25¢ including FREE ARROWHEAD CHARM. HURRY! Send Coupon.

HOW TO START A JUNIOR BB GUN CLUB!



16-Page Brochure tells how any junior, adult or group can start a club—based on the junior 15-foot (range) spring-type air rifle marksmanship program of National Rifle Association. Only 10c.

DAISY MANUFACTURING COMPANY
Dept. 1955, Plymouth, Michigan, U.S.A.

☐ 25c enclosed. Send Gunbook, Charm, Catalog postpaid.
☐ 10c enclosed. Send Junior BB Club Brochure postpaid.

NAME _____
ST. & NO. _____
CITY _____ STATE _____

IT'S THE *Super-Quiet*

SCOTT-ATWATER

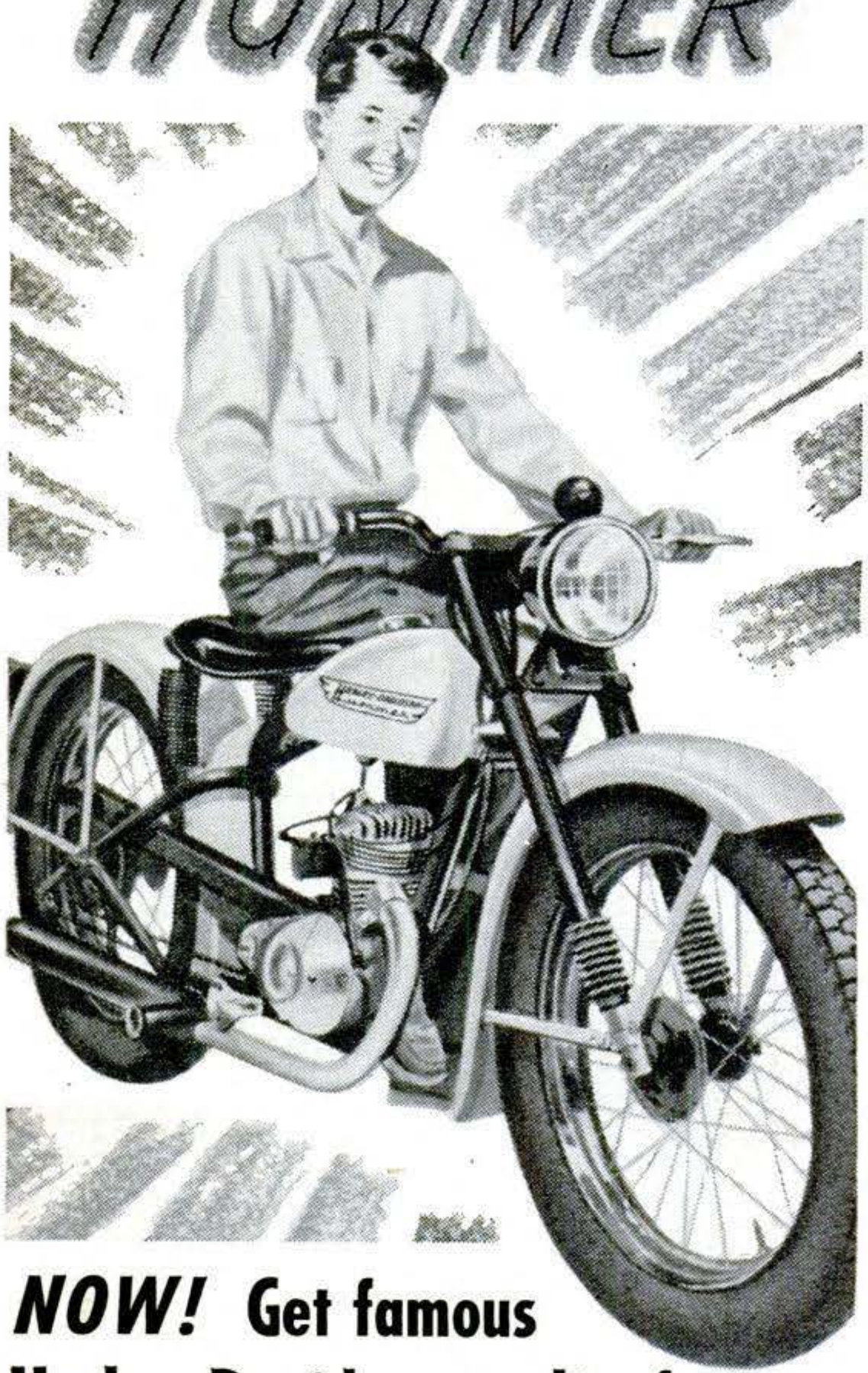
...THE OUTBOARD THAT BAILS YOUR BOAT!

SCOTT-ATWATER has everything you're looking for in an outboard: *Bail-a-matic* power bailing; smooth, quiet *Hush-Spring* Mount and *Aqua-mute* Exhaust; *Stowaway* Tank; Complete Shift; Snap-off Hood, many other features.

For FREE COLOR BOOKLET on full line—30, 16, 10, 7½, 5 and 3.6 h.p.—write Scott-Atwater Mfg. Co., Minneapolis 13, Minn., Dept. PS-55.

Copyrighted material

Announcing the NEW HARLEY-DAVIDSON HUMMER



NOW! Get famous Harley-Davidson quality for as little as $17.00* per month!

Here's the newest two-wheeler on the American road . . . perfect transportation for work, school and play. It's the beautiful new Hummer and it's packed with famous Harley-Davidson quality features.

Economical—100 miles per gallon—cheaper to ride than walk. *Easy to ride* — light, comfortable, handles like a dream . . . your dealer will teach you to ride . . . FREE. *Practical* — parks anywhere . . . gets you to and from work faster. Harley-Davidson service is available everywhere. See the Hummer at your dealer's today . . . and ask about his easy-pay plan. Or write for free literature. HARLEY-DAVIDSON MOTOR Co., Dept. PS, Milwaukee 1, Wis.

**Average after minimum down payment — includes Federal tax, insurance, freight, carrying charges.*

GOSH! what a boat!

Cadillac molded plywood boats, feature the finest advances in outboard design. They're light, fast and roomy. Special hull contours permit greater speed and cat-quick handling—with full-load safety. Molded from 5 to 7-ply clear veneer—they're rugged. Rich mahogany wood and chrome plated brass hardware. These beautiful boats give you superior quality and performance at reasonable prices. Write for free literature on Cadillac's *complete* line of molded plywood, aluminum and cedar strip boats.

CADILLAC MARINE & BOAT CO.
158 Seventh Avenue, Cadillac, Mich.

Cadillac SWEETEST BOAT AFLOAT

SAFETY ON THE HIGHWAY!

$1.00 POST PAID

BRITE-SITE REFLECTOR
Order today.
$1 per emblem
(no C.O.D.)
All emblems postpaid.

3" x 12" REFLECTIVE RED background with BIG 2" silver letters remind drivers behind you to "DIM LIGHTS." Reflective brilliance also helps prevent rear-end collisions while driving and when parked. Complete, EASY TO APPLY.

DIM LIGHTS

BRITE-SITE P.O. BOX 488, MADISON 1, WIS.

are your EYES worth $2.95?

Don't take chances in workshop or sports. You need these sensational

NEW 'VISOR GOGGLES' . . . only $2.95 ppd.

Protects eyes at work or play; protects from sparks, flying objects, dirt, light-or-sun-glare. **Fits over glasses, too;** made of Miracle-CLEAR optic plexiglas for **perfect visibility;** adjustable; ends eyestrain. BUY DIRECT! MONEY-BACK GUARANTEE! Specify ☐ clear or ☐ tinted. Send check or money order today!

J. & J. GOGGLE CO. (Dept. PS-1) 125 Catlin Ave., RUMFORD 16, R.I.

BEST LEAKPROOFING—ALL BOATS!

BOAT-ARMOR*

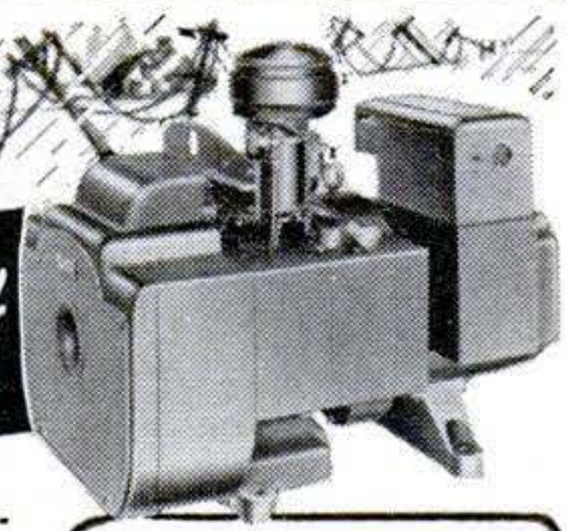
'BLU SHEEN' Fiber Glass Cloth • SUPER RESIN — Non Sag, Non Run

Identified, Guaranteed Quality!

ASK YOUR MARINE DEALER. Write us if Boat-Armor is not available near you. (*Reg. U. S. Pat. Off.)

GLASS PLASTIC SUPPLY CO., 333 W. Elizabeth Ave., Linden, N.J., Dept. P

Protect your home against power interruptions with an...



ONAN Emergency ELECTRIC PLANT

Provides dependable standby electricity for heating system, pumps, freezer, lights, appliances. Keeps home safe, livable. Automatic start and stop. *Find out how little it costs!*

A SIZE FOR EVERY NEED
400 to 75,000 watts. Compact, quiet-running, easy to install. Gasoline engine powered.

Write for Folder!

D. W. ONAN & SONS, INC.
3327 University Ave. S. E. • Minneapolis 14, Minnesota

Copyrighted material

Holt's WORLD-FAMOUS Do-It-Yourself Products

For the Motorist and the Home

PISTON SEAL—
For restoring power and compression, stopping piston slap and reducing oil consumption.

GUN GUM—
For mending leaky mufflers, sealing pipes and joints.

BATREPAIR—
An acid-proof battery weld.

HOLTWELD—
For repairing cracked cylinders.

RADWELD—
For repairing leaky radiators.

NO-CRODE—
For keeping battery terminals clean.

SUPERTUNE COMPRESSION PRIMER—
For maintaining top engine tune-up.

LOY—
For permanently repairing anything broken, cracked, loose or leaky — metal, wood, glass, plastic, porcelain. It's real metal in a tube.

ORIGINAL Piston Seal TRADE MARK

Restores Power and Compression! Stops Piston Slap! Reduces Oil Consumption! Increases Mileage!

Good for 10,000 miles of carefree driving. Next best thing to a complete motor overhaul . . . at **1/20 the cost.** Today's biggest seller. Millions of tubes have been sold throughout the **World** during the past 18 years. **Undeniably safe** for even the finest engines. **Endorsed** by leading technical automotive experts.

Easy to use

Costs less than $5

Stop Danger of Carbon Monoxide Gas

Sets like a weld in a few minutes!

No Tools Necessary Apply by Hand

Holt's **GUN-GUM MUFFLER SEAL** PLASTIC

$1.69 CAN

Mends leaky mufflers-seals pipes and joints

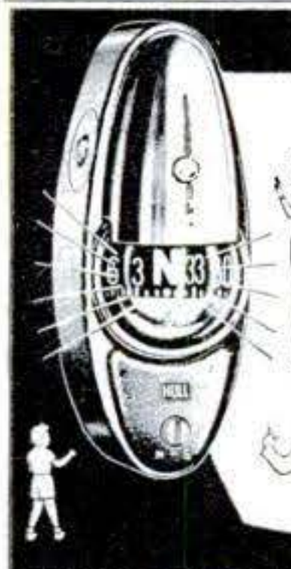
Write for full details

At every Auto and Accessory Store

TREGLOWN CO., Inc., Fanwood 25, N. J.

Canada: 1366 Greene Ave., Montreal 6 (Prices slightly higher in Canada)

A GRAND GIFT



. . . FROM EVERY ANGLE

A HULL AUTO COMPASS . . . for Father's Day, birthdays, any occasion . . . is an IDEAL GIFT. Fine instrument quality, handsome styling, years of guaranteed service. Repeatedly appreciated. At better dealers everywhere. Write for literature.

INSIST ON HULL QUALITY AND ACCURACY

Beaconlite® illuminated $6.95
STREAMLINE® non-illuminated $4.95

HULL MFG. CO. P.O. Box 246, E-S WARREN, OHIO

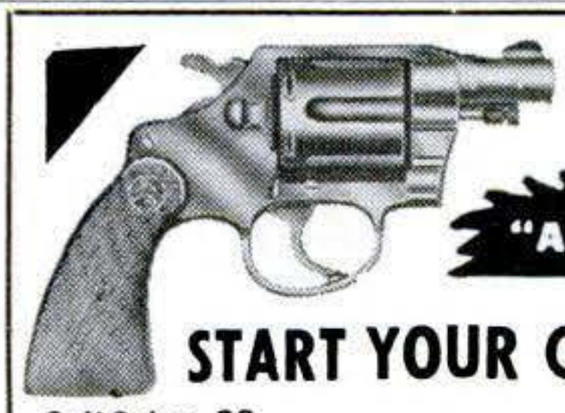
The *Flatfish*

Makes An Amateur An Expert

The Flatfish enables even an amateur fisherman to be an expert because of its extremely lifelike motion which fools a fish into striking. That's why it is something special. World's largest selling plug. Over 14,000,000 sold. Get it at your tackle dealer's or write for 48-page book with fishing secrets of famous anglers.

Free CATALOG

HELIN TACKLE CO.
4099 Beaufait Detroit 7, Mich.



GUNS

12 MODELS "AUTHENTIC REPLICAS"

START YOUR COLLECTION TODAY!

Colt Cobra .38

Newest firearm in Colt line. Compact in design. Used by detectives and police officers throughout USA where quick action is paramount. Six shot.

One of the most versatile weapons ever made. Carried by officers as side-arm. Semi-automatic. Could be fitted to special stock and used as rifle.

German 9MM Luger

- **Reproduced in Actual Size, Design and Balance.**
- **Made of Solid Cast Aluminum**
- **Finished in Gun Metal Black**
- **"He-Man" Trophies for Den, Rumpus Room, Cabin, Etc.**

COLLECTION INCLUDES:

Russian Tokarev	Spanish Moxley
German Luger	Belgium Automatic
Czechoslovakian Pistol	German P-38
Italian Brevettata	Frontier .44 Colt
German Mauser	Colt .45 Automatic
Japanese Nambu	Colt Cobra .38

Send Cash. Check or Money Order.
(In Calif. add 3% Sales Tax)
Sorry, No Canada Orders or C.O.D.'s

ONLY $2.00 each postpaid

LYTLE NOVELTY CO.

2656 Fashion Ave. Long Beach 10, Calif.

Copyrighted material

FREE outdoor BOOK

Featuring

4 Coleman® OUTING PALS

for More Fun on Every Outing

NEW Coleman Portable COOLER – Newest "Pal" for more fun on picnics, camping, outings of all kinds. Low "K" factor holds cold longer...keeps food, drinks cold, fresh. All inside corners rounded—easy to keep clean and odor-free. Soldered leak-proof. Exclusive latch opens with finger-touch. 3 sizes. Top quality at low price. See them today!

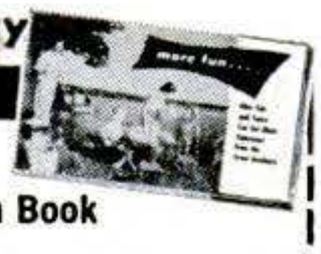
Coleman Floodlight Lantern means more hours of fun outdoors. Floodlights 100-ft. area. Lights instantly. Burns 8 to 10 hours on one filling. Safe; stormproof. Coleman Reflector makes it a powerful spotlight. Single, double mantle models. *Priced from $11.95*

Coleman Folding Camp Stove cooks like a gas range, any place, anytime. Lights instantly. Burns low cost fuel readily available. All the heat you want for any cooking—instantly regulated. Folds up and carries like a suitcase. 2 and 3-burner models. *Priced from $12.95.*

Coleman Carrying Case-Camp Table dual purpose, roomy all-steel carrying case unfolds into a sturdy camp table. Table legs, 4 stools plus eating and cooking gear pack inside. Sets up in seconds. *Price $12.95, stools $2.25 ea.*

See Your Coleman Dealer's Display

MAIL COUPON TODAY



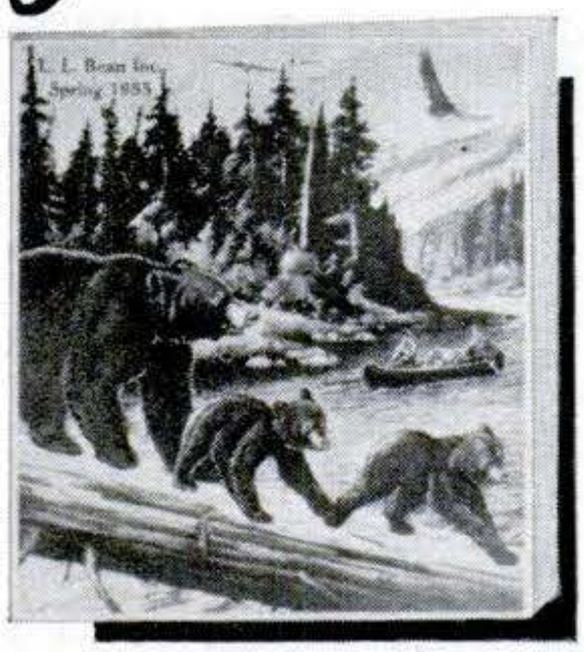
The Coleman Company, Inc.
Wichita, Kansas Dept. 221-PS
Please send me free copy of the new Coleman Book "How to Have More Fun on Every Outing."

NAME _____

ADDRESS _____

CITY _____ STATE _____

Bean's Free Catalog



Fully illustrated 104 pages, showing special fishing tackle, footwear, clothing and one hundred and twenty other leather and canvas specialties of our own manufacture.

L. L. Bean, Inc., 266, Main St., Freeport, Maine
Mfrs. Fishing and Camping Specialties

SPUTTERBUG

NEW FLASHY, NOISY FLOATING LURE

Big head spinner makes terrific surface noise — really wakes up the big ones. Many sound and action effects. 9 colors. 5/8 or 1/4 oz. $1.35 ea.

WRITE FOR CATALOG

FRED ARBOGAST CO., INC., 2305 W. North, Akron, O.

Save 50%! Assemble Your Own

DIVING LUNG

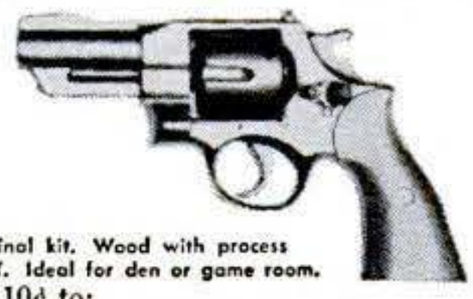
FREE BOOK SHOWS HOW

We furnish the parts and instructions. Complete outfits $49.95 and $59.95. **Write for our descriptive literature today!**

UNDERWATER SPORTS, INC.
Dept. D, 302 W. Adams
O'Fallon, Ill., P.O. Box 65

FULL SIZE MODEL KITS!

Luger	$3.00
Colt .45 Auto	3.50
Colt .44 Frontier	3.50
Walther P-38	3.00
Colt .380 Auto	2.50
Submachine gun	5.95
▶ S & W Magnum .357	4.00
S & W .38/.44	4.00



Complete, improved detail, easy to finish. The original kit. Wood with process for gun metal finish. ORDER THESE MODELS DIRECT. Ideal for den or game room.

For Catalog, Send 10¢ to:

O'BRIEN GUNCRAFT (A) P.O. BOX 657 MADISON, WIS.

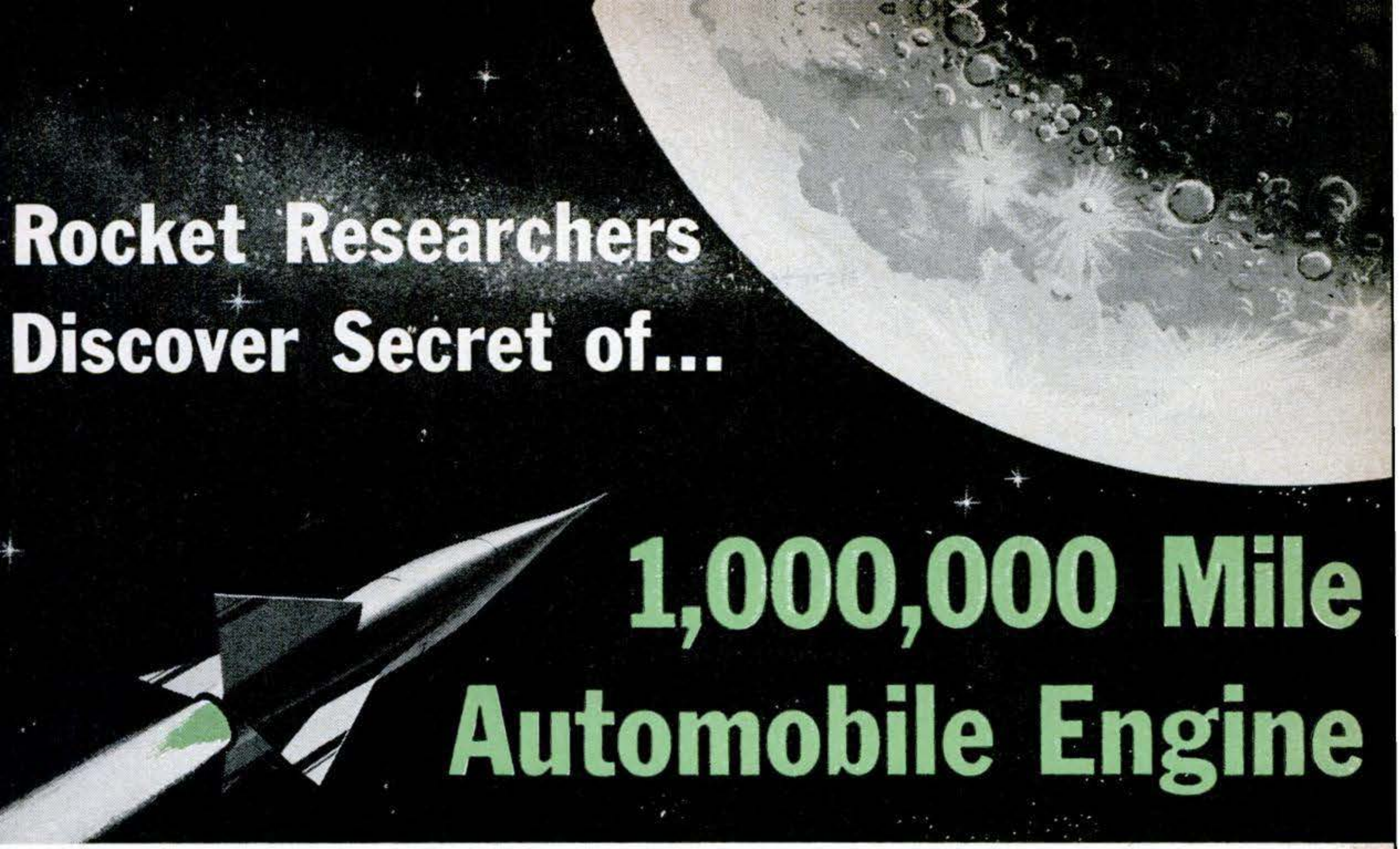
DANGER AHEAD!

It's a life saver — the Delta Flashing Powerlite. Brilliant red flashing top light. Powerful side spotlight — all in one compact unit! 4-way switch. 6-volt battery. Get one! Less battery, only **$6.75**

Delta Electric Co., Marion, Ind.

Delta FLASHING POWERLITE ELECTRIC LANTERN

Copyrighted material



Your Present Engine Can Last Years Longer ... Thanks to New Sintered Metal Filter Method!

THIS IS THE SECRET that wouldn't keep—the invention that may put men on the moon years before experts believed it could be done. This is the discovery that can make present-day automobile engines last hundreds of thousands of miles—and save millions of dollars for average car owners by reducing operating expenses. Yet, like many great discoveries, it is based on simple principles.

Friction, as every schoolboy knows, is what makes engines wear out. In early steam engines, this was such a minor problem that tallow was good enough for lubrication. Even in the first gasoline engines, almost any kind of oil could do the job.

But as engine heat increased and piston speeds approached 3000 feet per minute, lubrication engineers had to develop new oils containing "additives" you hear so much about.

Oil companies claim these additives are worth the extra 15c to 25c a quart you're paying for oil—and they're right. Purpose of these additives is to keep carbon and gum in harmless suspension in your oil—prevent deposits from forming in your engine. That's why your oil should look dark after a few miles of driving.

But here's the catch: ordinary filter packs made of absorbent material take out these valuable additives. The more often you change filter packs, the more additives you take out. Your oil looks "cleaner"—but you have more carbon, gum and additives forming in your engine.

Shocking? Yes, but that's only part of the story. Oil companies have developed still other additives—such as barium and molybdenum—which may make an engine overhaul something you don't even start thinking about

a four page report on the most important lubrication discovery in a lifetime!

Advertisement

Copyrighted material

How to Get a Life-Time Filter for 2 Weeks Trial in Your Car or Truck

You can try a Life-Time filter in your car for two weeks to see if it's really all we say it is (it is, and more). If, however, you decide you don't want to keep it because you miss the fun of buying filter packs, or for any reason, all you do is send it back for a refund, with no questions asked. Ordering is simple:

1. If your car already has an oil filter, you can convert it to a Life-Time filter with a kit which replaces your throwaway pack with permanent metal. Just send us the make and number of your present filter pack (if you know it); otherwise, send us the make, model and year of your car or truck. Enclose $6.95 (we pay shipping) or send $2.00 deposit (you pay balance and C.O.D. charges on arrival).

2. If your car has no filter now, or you want to replace the one you have, send us the make and model of your car and $12.95 (we pay shipping) or $5 deposit, balance C.O.D.

3. Specially-designed conversion kits for cars with full flow systems and for Buicks with hydraulic valve lifters: $13.95 (we pay shipping). Or enclose $2 and pay balance and C.O.D. charges on arrival.

EASY TO INSTALL

If your car already has an oil filter, you can install a Life-Time permanent metal alloy element as easily as changing throwaway filter packs. If your car has no filter now, you can install a complete Life-Time unit fairly easily; no special tools are needed.

See your authorized Life-Time dealer or order direct from the manufacturer. Do it today—before you waste another cent on filter pack replacements.

Permanent Filter Division, Dept. CPS-5
Continental Manufacturing Corp.
Washington Blvd. at Motor Ave.,
Culver City, California

Rush Life-Time filter for:

Make, model, year of car_____

_____
Present filter make and model (if known)

I enclose

☐ $6.95 for conversion kit (full flow, $13.95); factory pays shipping.

☐ $2.00 deposit for conversion kit; send C.O.D.

☐ $12.95 for complete unit ($18.95 for chrome); factory pays shipping.

☐ $5.00 deposit for complete unit; send C.O.D.

Name_____

Address_____

City_____ Zone_____ State_____

1. Conversion Kit

replaces present filter element with Life-Time metal alloy.

2. Complete Unit

...which replaces entire old filter, is easily installed,

WHY NOT MAKE JUST ONE SIZE?

Actually, it is fairly easy to make a metal oil filter that can be installed on any make or model of car. Trouble is, different cars have different oil capacities, oil pressures, etc. A "universal" model oil filter that did a halfway job in all cars and a good job in none would be a waste of money, no matter how cheap it was.

That's why special models of the Life-Time filter were designed for every car, truck, agricultural vehicle, etc. It cost a great deal of money and took many years to engineer and test these special porous metal filters. *Only the original, genuine Life-Time oil filter has a model engineered especially for your car.*

This saves the car owner the expense and nuisance of returning "universal" filters that don't do the job. It builds good will for dealers who handle the original, genuine Life-Time filter.

See your authorized Life-Time dealer or order direct from the manufacturer. Do it today—before you waste another cent on filter pack replacements!

Opportunities Now for Life-Time Filter Dealers and Distributors

A dealer and distributor network is now being formed to handle demand generated by 4-page reports like this published in leading national magazines, plus sponsorship of radio and television broadcasts of the Indianapolis 500 and the Panamerican Road Race.

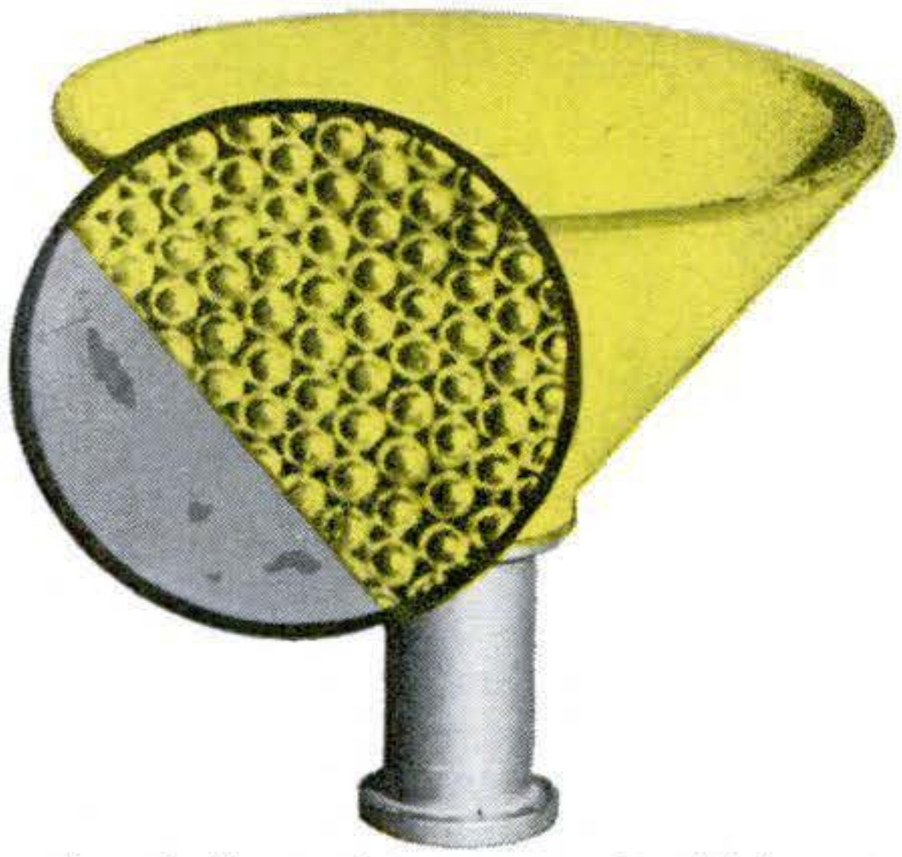
For complete information on how you can be first with the most exciting automotive product of this decade, write or wire:

Continental Manufacturing Corporation
Dept. CPS-5, Washington Blvd. & Motor Ave.
Culver City, California

© 1954

Advertisement

Copyrighted material



have already formed in your engine. Laboratory tests prove it does this.
Road tests (see graph) prove that engine life is greatly increased by the Life-Time filter because it removes all dangerous abrasives, removes acid-producing water and makes acid already in your oil harmless.
Only the original, genuine Life-Time metal alloy filter proves its claims of increased engine life by both laboratory and road tests.

Life-time Oil Filter Never Wears Out—eliminates filter pack replacement forever!

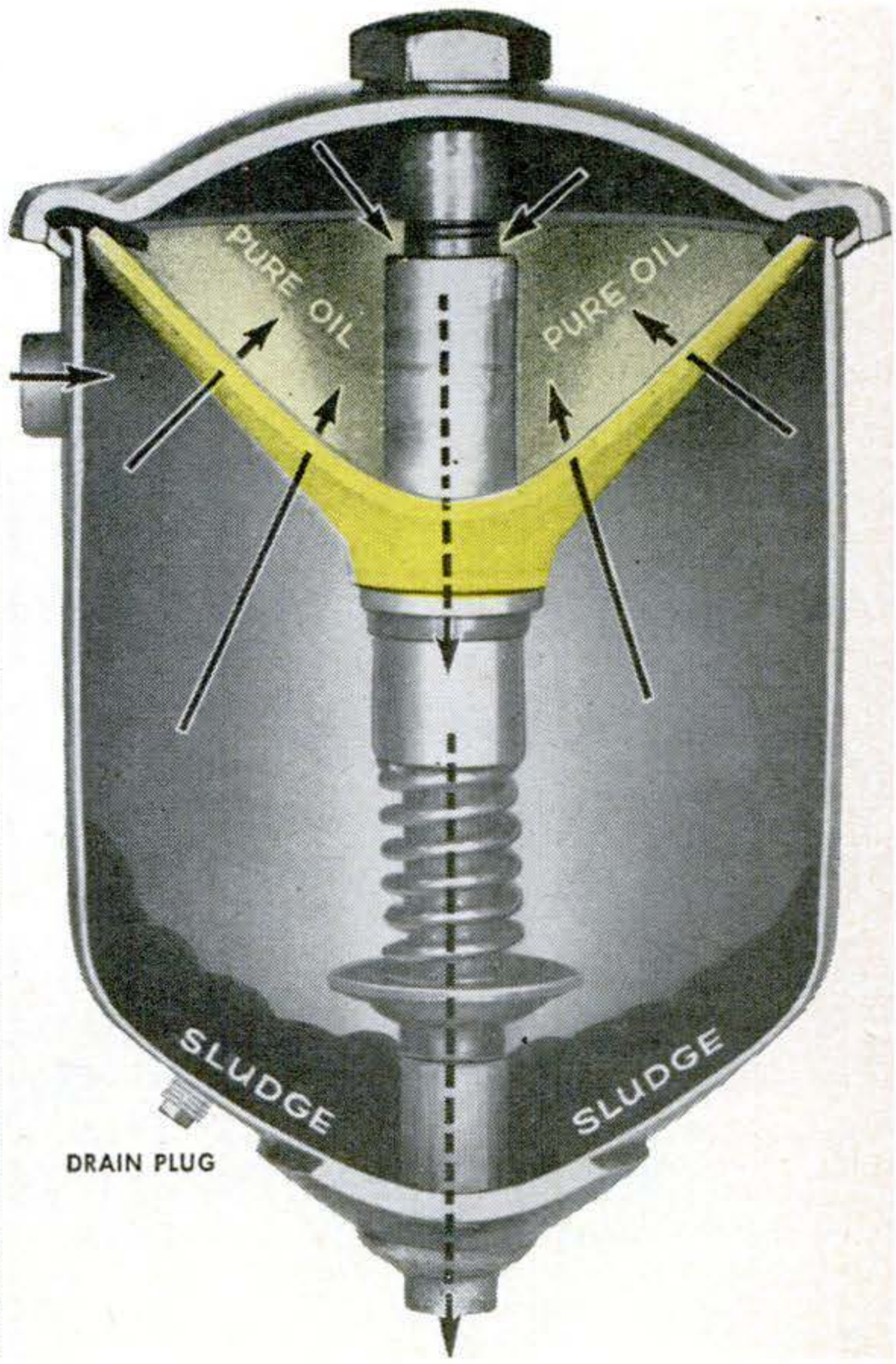
You never change the Life-time filter—just rinse it occasionally in gasoline and it's good as new. In addition, you save the quart of oil soaked up and thrown away regularly with ordinary replacement filter packs, which can add up to a lot of oil during the life of this filter. How long is that? Well, the Life-time filter is guaranteed for 10 years.

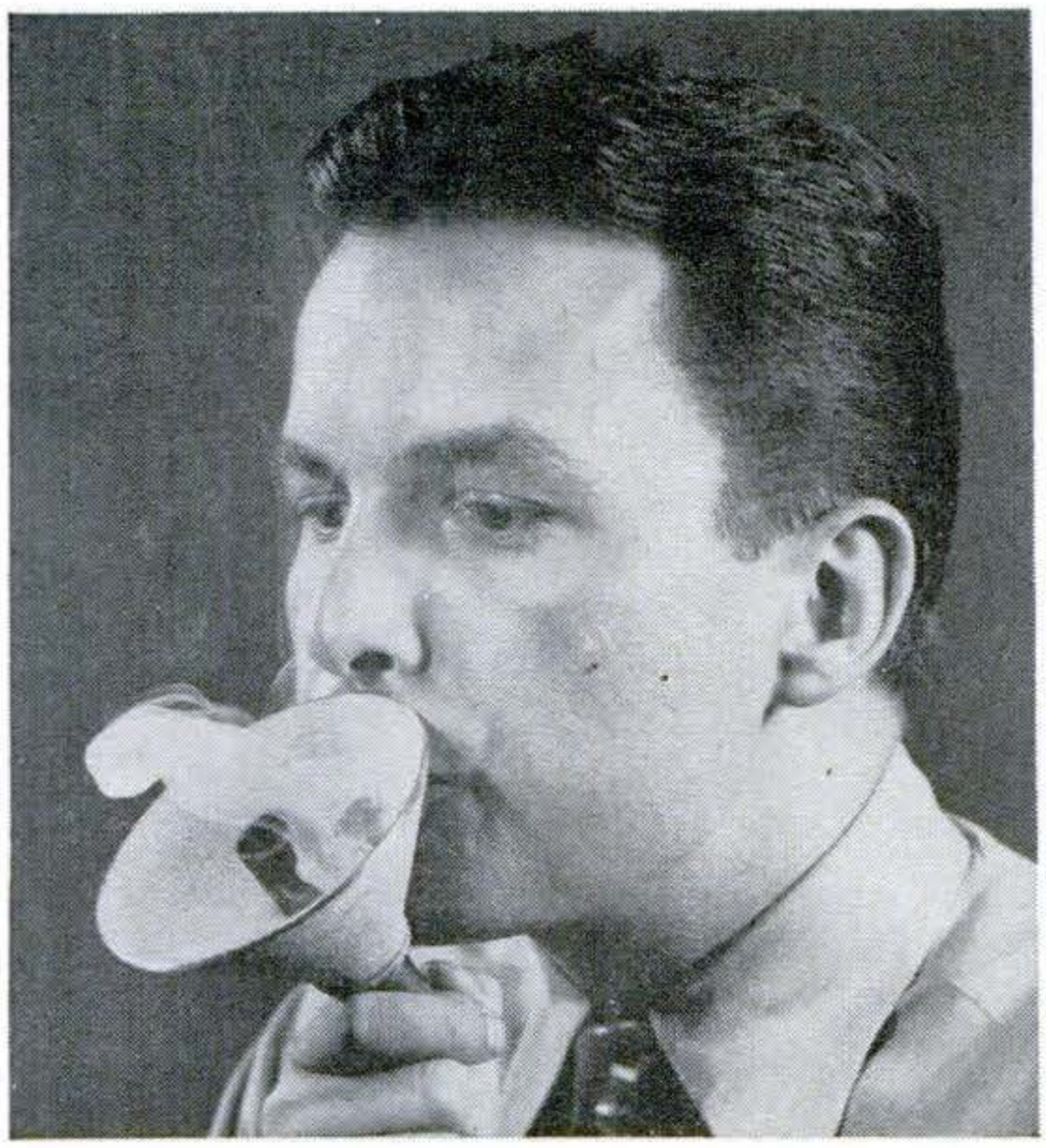
But since the metal alloy never wears out, the money you save on the filter packs you don't have to buy, plus what you save in engine overhauls, is something for your life insurance man to figure out for you.

To find out how you can have a permanent metal Life-Time filter on your car, see next page.

How The LIFE-TIME Filter Works

As dirty oil is forced through element, all harmful particles drop to bottom of filter case. Only pure, filtered oil can get back into circulation.

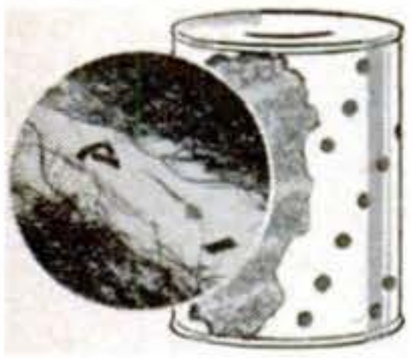




"SMOKE TEST" proves superiority of Life-Time porous metal filter. Ordinary filters cause oil pressure to drop when fibers soak up oil, expand and prevent free circulation.

Copyrighted material

until 250,00 miles or so. But there was no point in putting these oils on the market until an oil filter could be developed that would not remove additives. True, a few of these additives are already on the market in limited quantities—but, again, they are ineffective as long as they are being soaked up in absorbent filters.



Another problem with ordinary filter packs is what engineers call "channeling." This happens when hot oil, under pressure, forces holes in the paper or rag the pack is made of. As these channels grow larger, more and larger abrasive particles get through into the oil stream where they can score and damage rings, bearings and other precision parts.

To solve these problems, engineers had to find a filter that wouldn't soak up valuable additives, but would remove the microscopic abrasives that do the real damage to precision engine parts. These "danger zone" particles range from 10 to 30 microns in size (a micron is 39 millionths of an inch)—so small that several hundred of them would simply rattle around inside the period at the end of this sentence.

Since conventional absorbent filter material couldn't be packed tight enough to stop these tiny particles without reducing oil flow, engineers decided an entirely new kind of filter material had to be developed. Obviously, it had to be metal—but there was no way of making a metal screen fine enough.

Finally, metallurgists found the answer by fusing together millions of tiny metal balls into a porous filter. Being non-absorbent, it wouldn't remove additives, yet abrasives simply couldn't get through the spaces between the tiny metal balls. Made of an alloy that just doesn't wear out, it *never has to be replaced!*

Original Life-Time Filter Passes 300,000-Mile Test

Samples were rushed to government proving centers for testing. Results: the Life-Time metal alloy filter not only solved the critical problem of filtering liquid oxygen, nitrogen, etc., for guided missiles, but could save the government millions of dollars now spent on filter replacement packs for trucks, jeeps, tanks, etc.

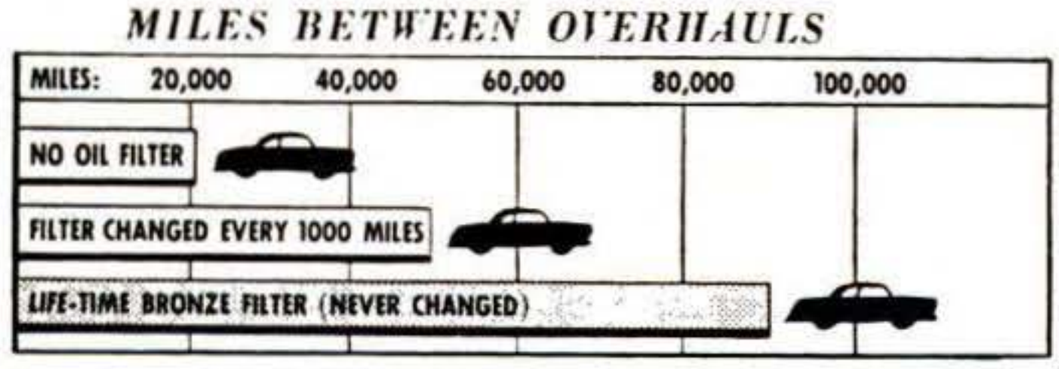
Besides government tests, millions of miles of road tests in truck, taxi and car rental fleets reveal amazing results. Cars equipped with the Life-Time filter have already passed the 300,000-mile mark *without ever changing oil filters!*

What About Other Metal Filters? Are They Any Good?

In the last few months, a number of Life-Time "type" porous metal filters have suddenly appeared on the market. Some of them look like the original Life-Time filter; others are experimental designs and "improved" substitutes. Until these can be tested, no one can say whether they are any good or not.

So far, only the *original, genuine Life-Time* filter has passed the 100-G shock test, ultra-sonic vibration tests and met military performance requirements. And the original Life-Time filter is available only from the Continental Manufacturing Corporation and its authorized dealers. You can't get it anywhere else.

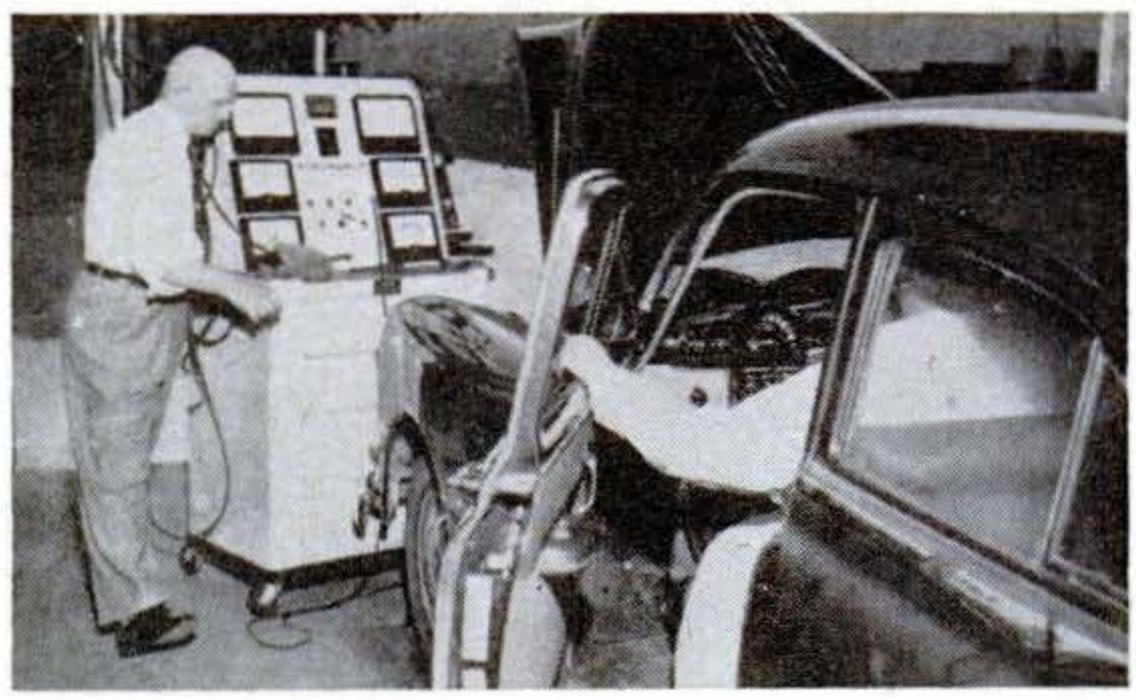
How LIFE-TIME 2-Way Acid Protection Increases Engine Life



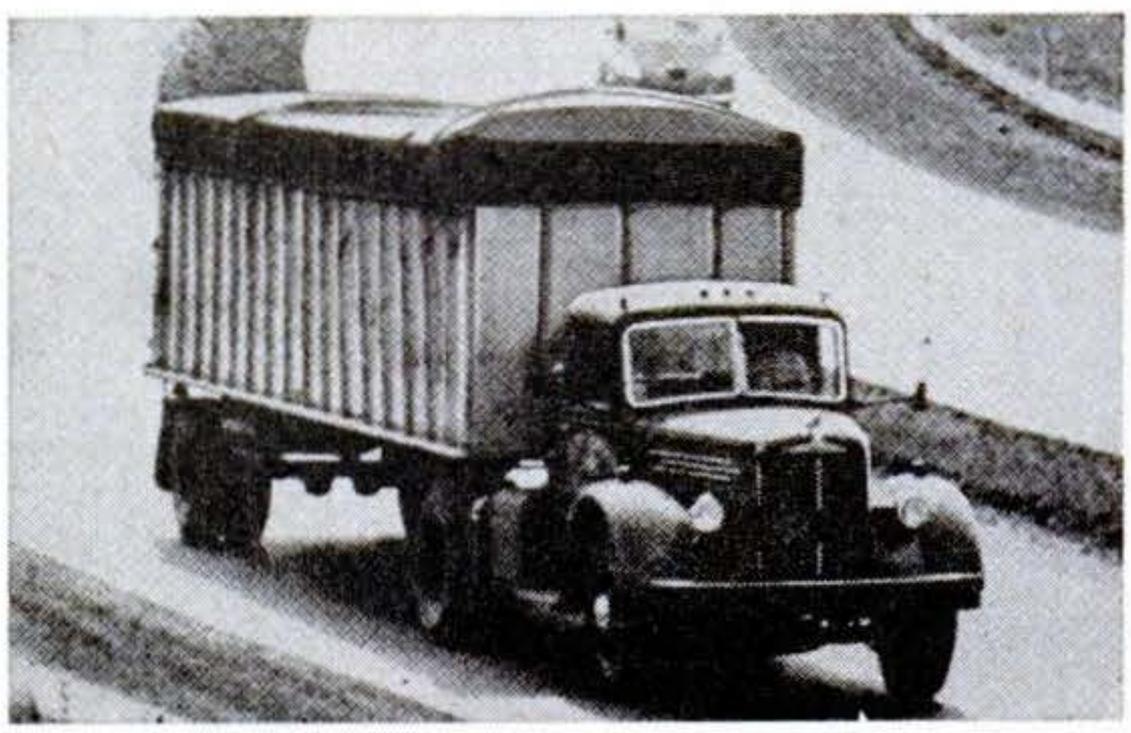
Every mile you drive, a certain amount of water gets into your oil. The heat of your engine makes this water combine with sulfur in your oil to make sulphuric acid. This acid eats bearings and other precision parts, causing costly damage.

The Life-Time metal oil filter actually removes water from your oil. Laboratory tests prove it does this.

In addition, the Life-Time oil filter has a special magnesium insert which neutralizes acids that



250,000 MILES before a major overhaul should be normal with today's engines and oils. Only the Life-time filter meets modern requirements.



DIESEL AND GASOLINE truck fleets have proved value of Life-Time porous metal alloy oil filter in hundreds of thousands of miles of road tests.

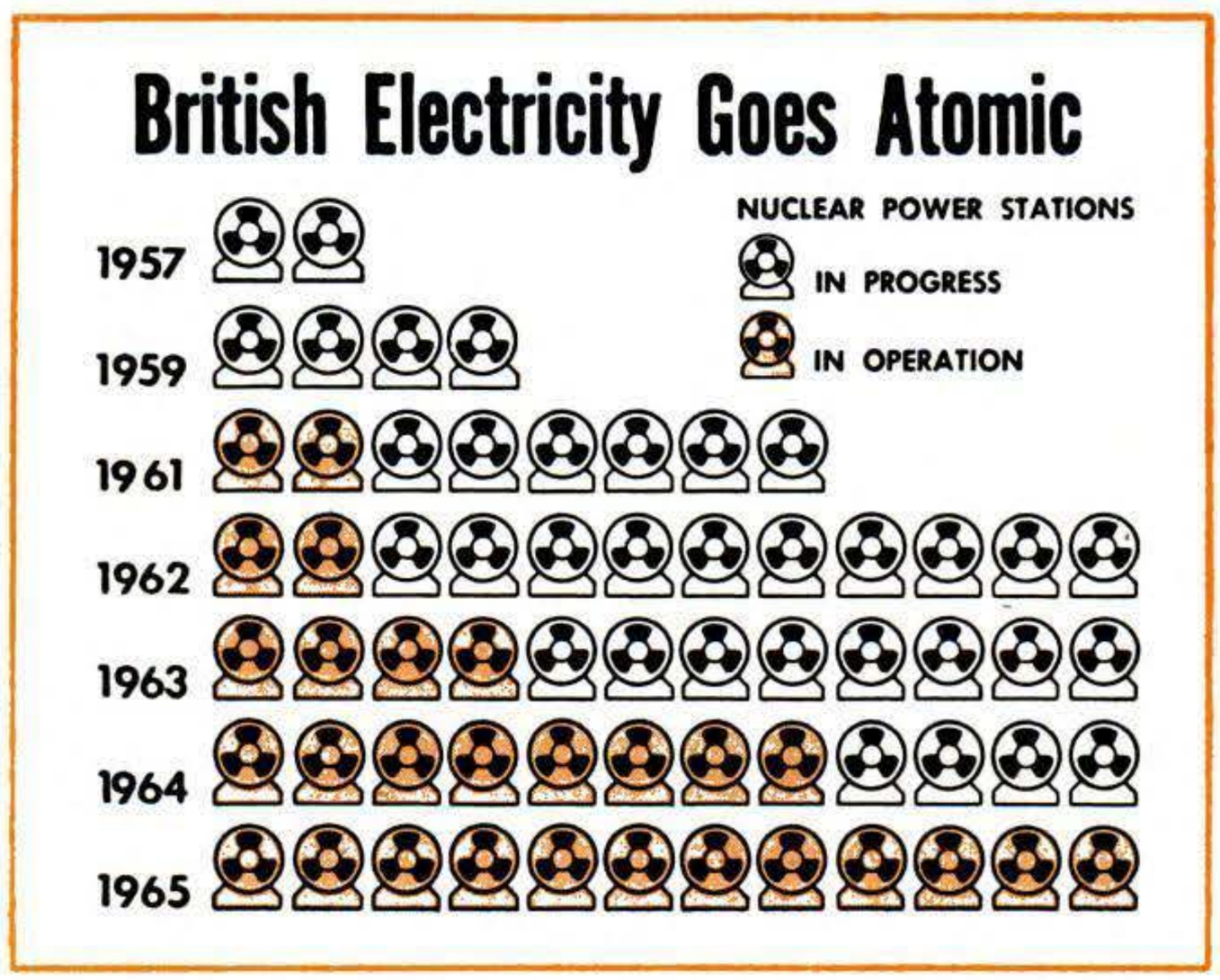
Advertisement

Copyrighted material

POPULAR SCIENCE MONTHLY'S . . . Last-minute news & notes

WOMEN--YOUNG ONES, ANYHOW--ARE SAFER DRIVERS than young men. The insurance companies say so, and back their belief with whopping rate reductions in most states. It will now cost papa as much as 23 percent less to let his under-25 daughter drive the family bus than it would to let his under-25 son take the wheel. The insurance people are not reckless enough to say that girls are better drivers--they may have fewer accidents because they drive less often, particularly during dangerous evening hours...A NEW KIND OF AUTOMATIC HEADLIGHT DIMMER, still experimental, uses a perforated scanning disk to keep out light from the sky and signs, which may fool present dimmers. It responds only to intense points of light, can even be rigged to disregard alternating-current lights (street and house lights) in favor of DC head lamps...AIR-INFLATED SEAT CUSHIONS in new Chevvy trucks have separate sections, each with its own hand pump, so that driver and passenger can make individual hardness adjustments.

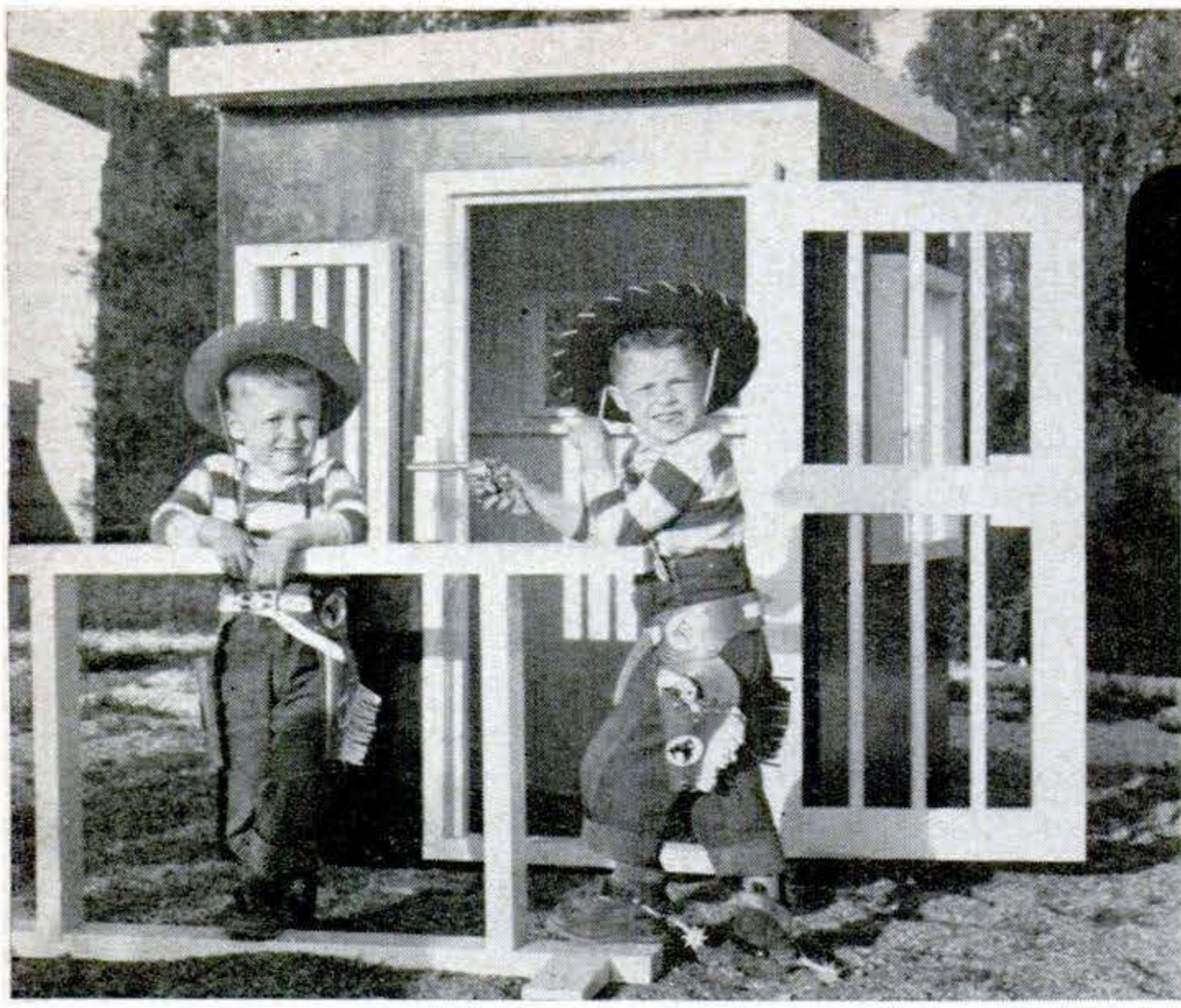
A QUARTER OF ALL BRITAIN'S ELECTRICITY WILL COME FROM ATOMIC ENERGY by 1975, if an ambitious building plan just announced works out. The chart below shows the timetable for the construction of 12 atomic-power plants over the next 10 years. They will operate at the same cost as coal plants. By the 1970s, the British expect to build no more coal-burning power plants.



BABY FOOD FOR JET PILOTS? Jet jockeys can't take off their oxygen masks to eat, so the Air Force is testing a soupy mash of bananas to be piped right into the mask. It's something like baby food, but tastes better--they say.

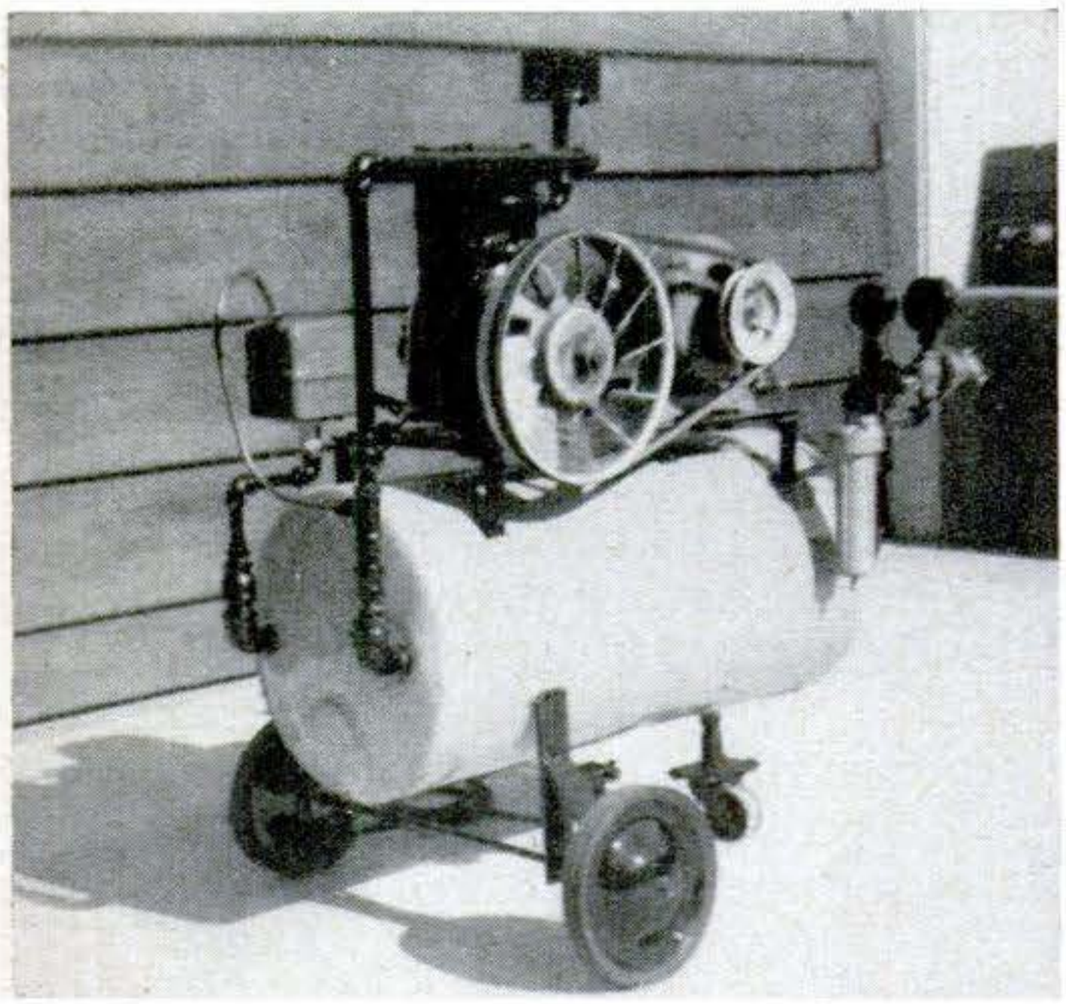
AN UNDERWATER TV CAMERA INSPECTED THE COLUMBIA RIVER BED for Army Engineers planning The Dalles Dam. Previously they had used TV to check erosion at the base of the spillway of Grand Coulee Dam.

Copyrighted material



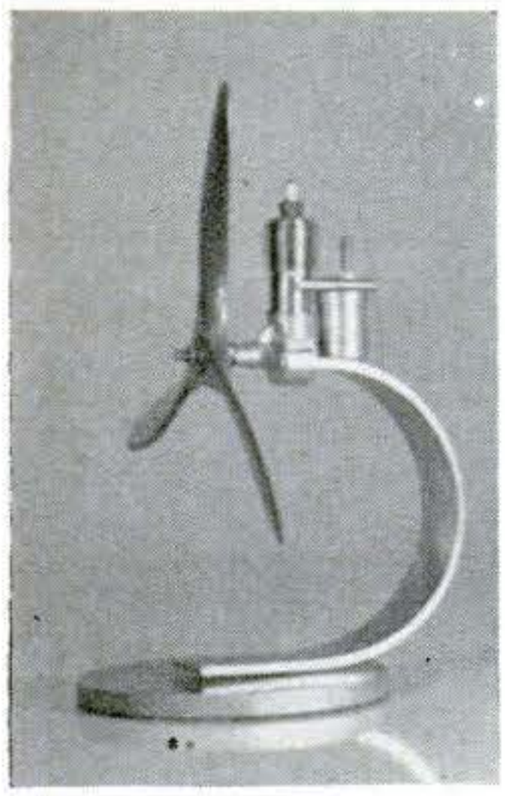
CRAFTSMEN AT WORK

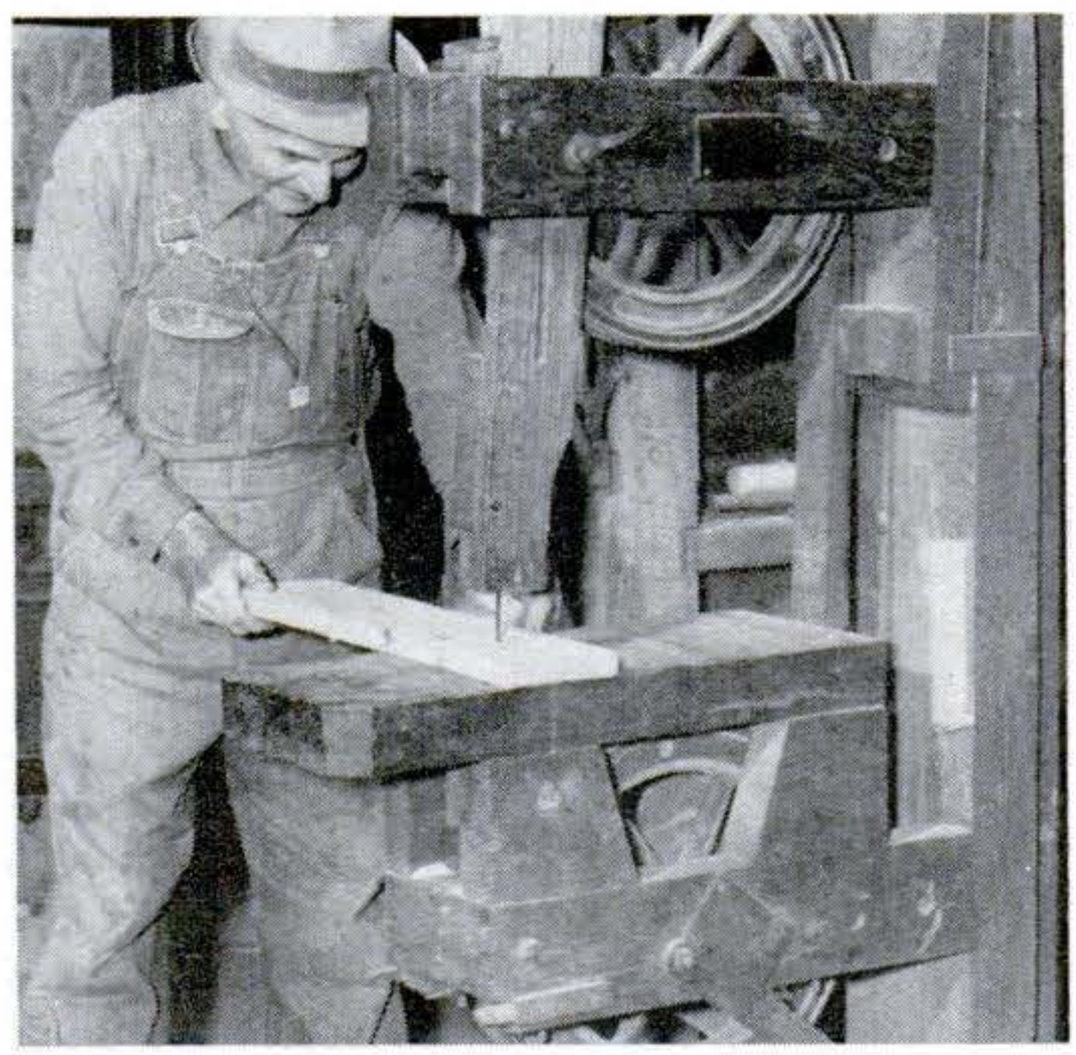
Plywood Jails "Badmen." Giving in to TV and movie Westerns, Robert M. Kuntz Jr. of South Bend, Ind., built a playhouse jail for his own and neighborhood youngsters. Walls and roof are of exterior plywood. Carriage-bolt assembly on a frame of two-by-fours permits easy taking-down for winter storage.



Builds Paint-Spraying Rig. A workshop story in PSM (Sept. '54, p. 241) got William L. Tyner of Glendale, Calif., to experimenting and he constructed a spray-gun outfit using a 2-cyl. compressor. He welded a tank from the ends of two discarded water heaters and covered the stack hole. This left four pipe openings for the air lines, pressure regulator and moisture trap.

Tiny Engine Develops 10,000 R.P.M. This model-iceboat motor, built by Robert J. Huelsbeck of Menasha, Wis., has a ⅝" bore and a ⅝" stroke. Except for an aluminum-crankcase casting, all parts are steel or brass made with hand tools and a small lathe. Operation at speeds from 5,000 to 10,000 r.p.m. is with either a timer and ignition coil or a glow plug.





Bandsaw Takes 18" Work. Needing a heavy-duty bandsaw, Edison Kirschman of Prairie Home, Mo., built one out of two gas-engine flywheels and a wooden frame. Tension on various-size saw blades used is regulated by a threaded crank and nut which move the upper wheel assembly.

Copyrighted material

Launch a day of fun....most anywhere!

—quiet fun, with an Evinrude

Outdoor America's most exciting discovery . . . TRAILER BOATING! Thousands will tell you there's nothing like it! You can explore famed vacation waters, or whisk your boat to lovely shores in easy reach. From highway driving to waterway cruising is a matter of *minutes*. Each launching starts a holiday of fresh adventure, new family fun.

Your boat? Your choice is wide—able fisherman, smart runabout, snug cruiser. Your motor? An Evinrude with *Whispering Power* . . . smooth as sailing! *And nothing less!* For this is the new *kind* of motor . . . so incredibly different from ordinary outboards . . . so amazingly *quiet* . . . so *smooth* . . . you have to ride with one to believe it. **SEE YOUR EVINRUDE DEALER.** Look for his name under "Outboard Motors" in your phone book. He knows boats, motors, trailers, and will gladly help you choose the right outfit for your needs. Time payments if you like. **FREE!** Write today for full-color catalog of the complete Evinrude line. **EVINRUDE MOTORS,** 4583 N. 27th St., Milwaukee 16, Wisconsin.

A Division of Outboard, Marine & Mfg. Company
In Canada: Mfd. by Evinrude Motors, Peterborough

all are quiet!

ELECTRIC BIG TWIN ***Aquasonic*** —25 h.p.* The ***proved*** electric starting outboard. **$525†**

BIG TWIN ***Aquasonic***—25 h.p. Brilliant power for big runabouts, cruisers, water skiing. **$430**

FASTWIN ***Aquasonic***—15 h.p.—speed to 30 m.p.h. America's "middleweight" favorite. **$347**

FLEETWIN ***Aquasonic***—7½ h.p. —only 49 lbs. Top value in the light motor field. **$235**

LIGHTWIN ***with famed Fisherman Drive***—3 h.p., 32 lbs. It "goes anywhere, stows anywhere." **$145**

All ratings are OBC certified at 4000 RPM tested in conformity with SAE test code. Weights are approximate. Prices f.o.b. factory subject to change without notice.

Evinrude

Pioneers in **quiet** *Outboard Motors*

Copyrighted material

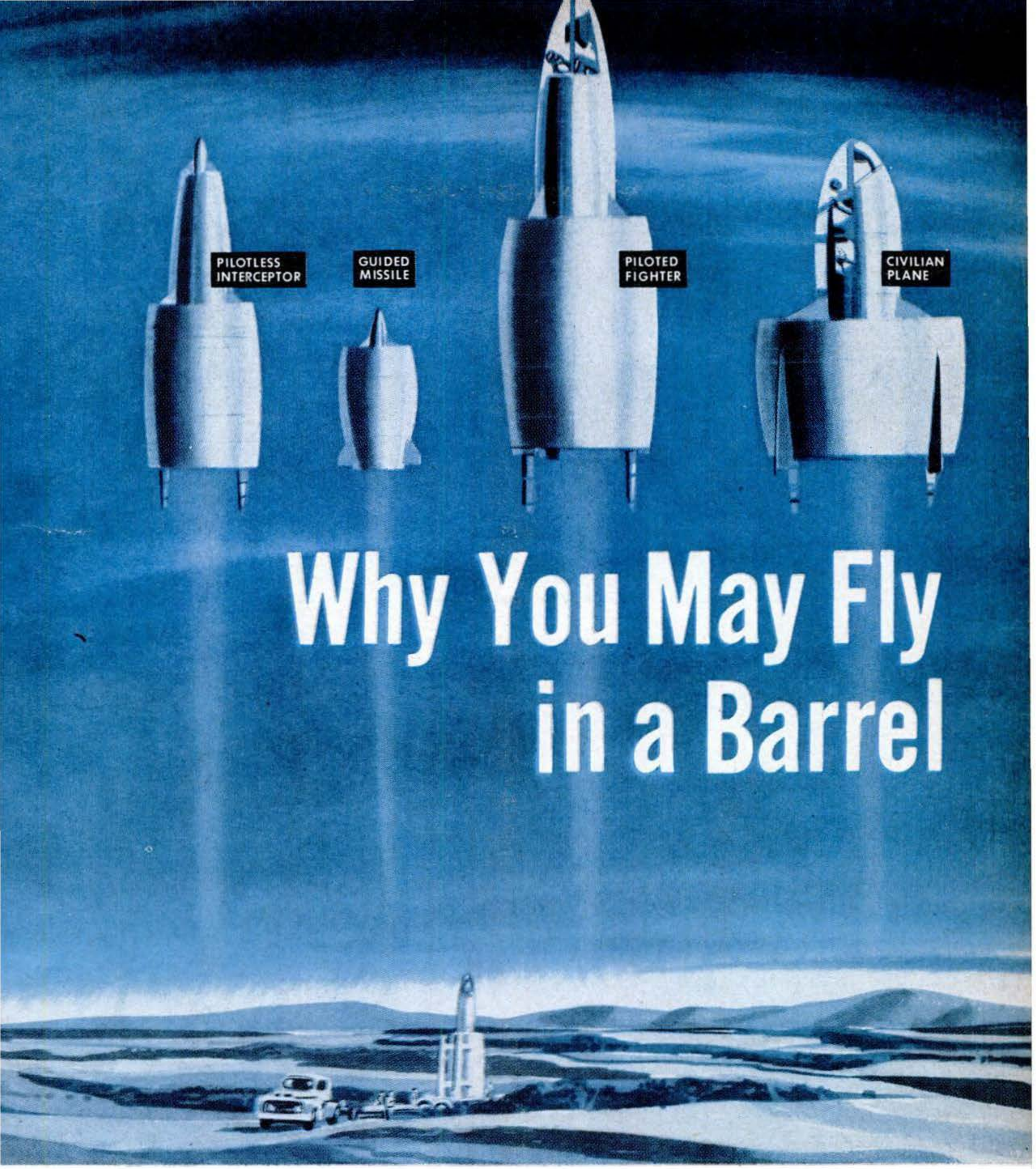
POPULAR SCIENCE
REG. U. S. PAT. OFF. Monthly

Artist shows coleopter in level flight and, in diagram below, ascending and landing vertically.

Tomorrow's plane, say designers in France, will be a flying engine with a wing wrapped around it.

By Alden P. Armagnac

Copyrighted material



Why You May Fly in a Barrel

Principle can be applied in variety of aircraft for many uses, as these four examples show.

THEY'RE hatching a sensational mechanical bird in an aeronautical laboratory at Brunoy, near Paris, France. Quivering in gales faster than sound, wind-tunnel models give the spectator an exciting preview of what may be tomorrow's airplane. The barrel-winged craft looks more like a projectile.

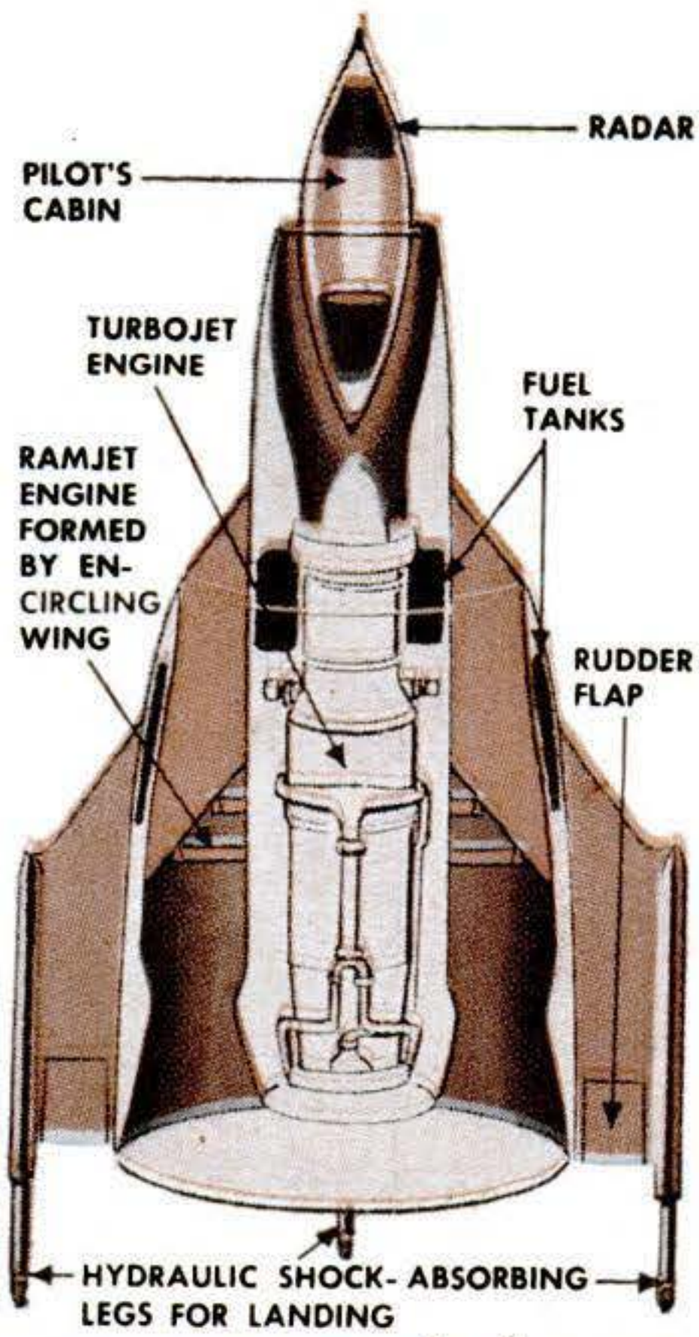
It will take off straight up, like a rocket. Gradually it will level off into horizontal flight. Finally it will up-end itself once more, descend vertically, and alight,

Copyrighted material

as it started, on its tail.

Under development by a French-German group of researchers, the fledgling craft is called a coleopter. An inexact but popular equivalent of its name would be "flying bug." It's a promising new member of the ultramodern family of aircraft designated by the magic initials V.T.O.—vertical take-off.

By matching both the vertical-rising ability of helicopters and the aerial performance of other types, V.T.O. planes would free aviation from dependence upon airport runways and carrier decks. Already the V.T.O. idea has inspired some of the most radical machines ever flown—America's tail-sitting "pogo" planes, England's fantastic "flying bedstead," and vertical-horizontal hybrids called convertiplanes.



CUTAWAY VIEW of coleopter shows it is virtually a flying engine. Here, barrel wing forms ramjet, to supplement turbojet at center.

But the coleopter, with its tubular wing, belongs in a class by itself. Finding nothing like it proposed before, France's Ministry of Industry and Commerce has granted more than a dozen basic patents for its design.

Bending its wing into a circle, its proponents explain, makes a single structural member do the work of two. The wing itself serves as the outer part of a jet engine, or as the duct of a ducted-propeller power plant. By saving weight, the range and payload are boosted. Moreover, a circular wing is strong, easily made and, since it is perfectly symmetrical, ideally maneuverable in the air.

For lift in level flight, a conventional plane's wing is mounted at a slight inclination to fuselage and air stream. The tubular wing, instead, is coaxial with the fuselage. So a coleopter supports itself by flying horizontally in kitewise fashion—the whole craft inclined a few degrees upward to the air stream. The lift then corresponds to that of a biplane, whose span equals the diameter of the circular wing.

Coleopters will serve both military and peaceful purposes. Here are examples of projects on the designers' drawing boards:

A guided missile called the Ogre, some six feet long and three feet in diameter, carries a shaped-charge warhead. Its ramjet engine hurls it at 530 m.p.h. to an estimated tactical range of 30 miles.

A pilotless interceptor, the 17-foot Charencon VI, climbs in two minutes to its 65,000-foot service ceiling. A ramjet engine supplements its turbojet power plant to give bursts of 1,300 m.p.h. speed. Radar and a television eye guide it to the target, which it destroys with cannon fire or rockets. Then it returns to base.

A light ground-attack plane, the 27-foot Bruche, flies at 900 m.p.h. under the combined power of a turbojet engine with an afterburner, and a ramjet.

A touring plane, the three-seat Hanneton II, is 19 feet long and has a barrel wing 20 feet in diameter. Two turboprop engines drive tandem propellers, whose thrust is enhanced by the wing-formed duct around them. This 280-m.p.h. plane of 620-mile range would be fast and economical for private flyers.

Occupants of coleopters remain comfortably upright in swivel seats, whether in vertical or level flight.

For short-to-medium-range air transport, the coleopter is the logical plane of the future, calculations convince a group of backers headed by Helmut von Zborowsky, Austrian-born engineer, and including Prof. Heinrich Hertel, former chief of development at Germany's great Junkers works. Participating with them in developing the coleopter is France's largest aero-engine concern. END

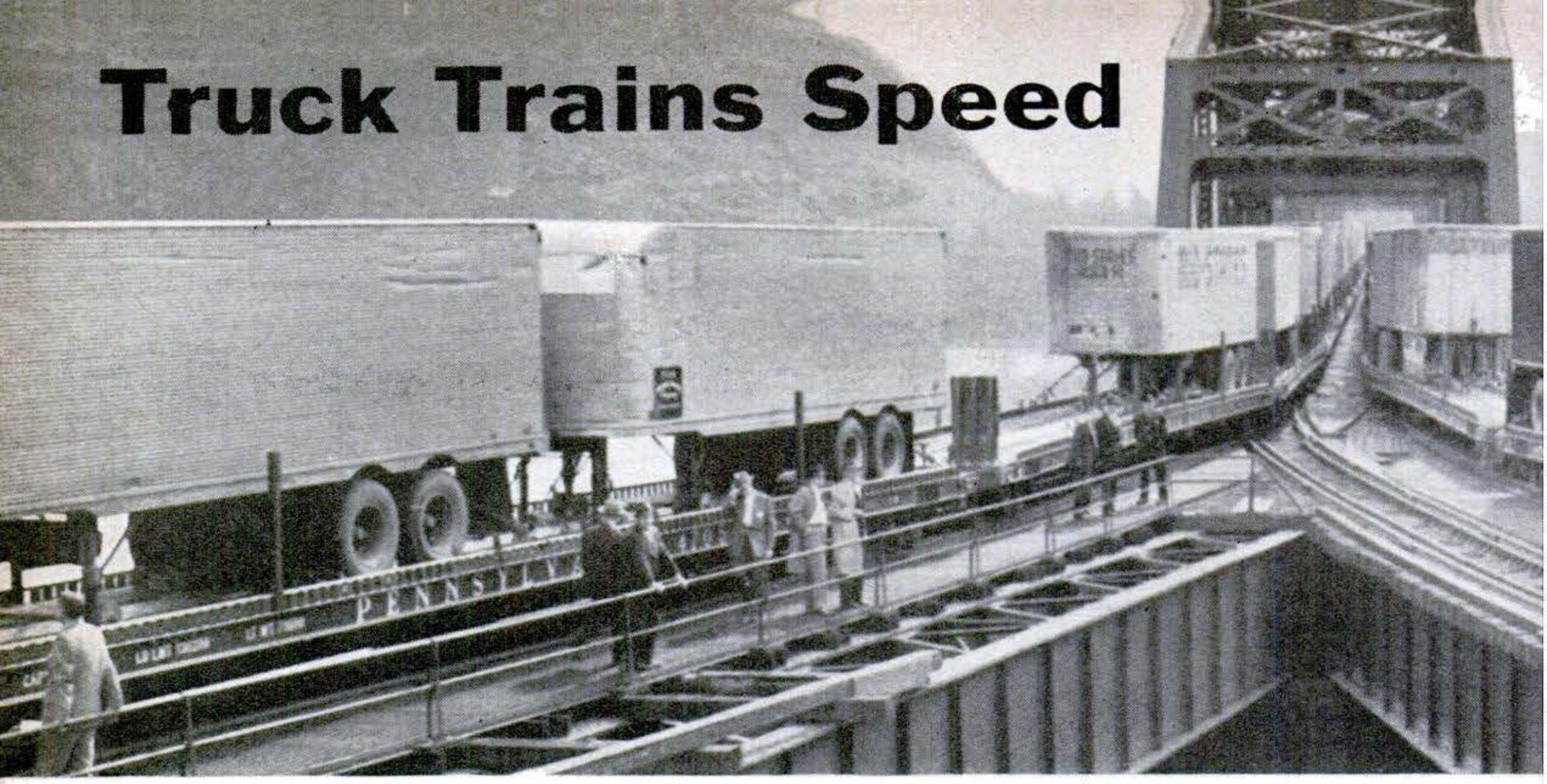
Copyrighted material

Houseboats Fit Any Purse

POOR-MAN'S yachts, they call outboard-powered rafts (like the one above) in Key Biscayne, Fla. They cost about $75, carry family, icebox and stove in comfort.

The more lavish Mississippi River job below also floats on oil drums. Fred E. Bissell, sales v.p. for a woodwork firm, built it for about $1,500. He commutes to his office in Dubuque, Iowa, in the speedboat—a 13-minute trip, no stop lights.

Truck Trains Speed



Double meet: High above Allegheny River at Aspinwall, Pa., railroad and trucking officials

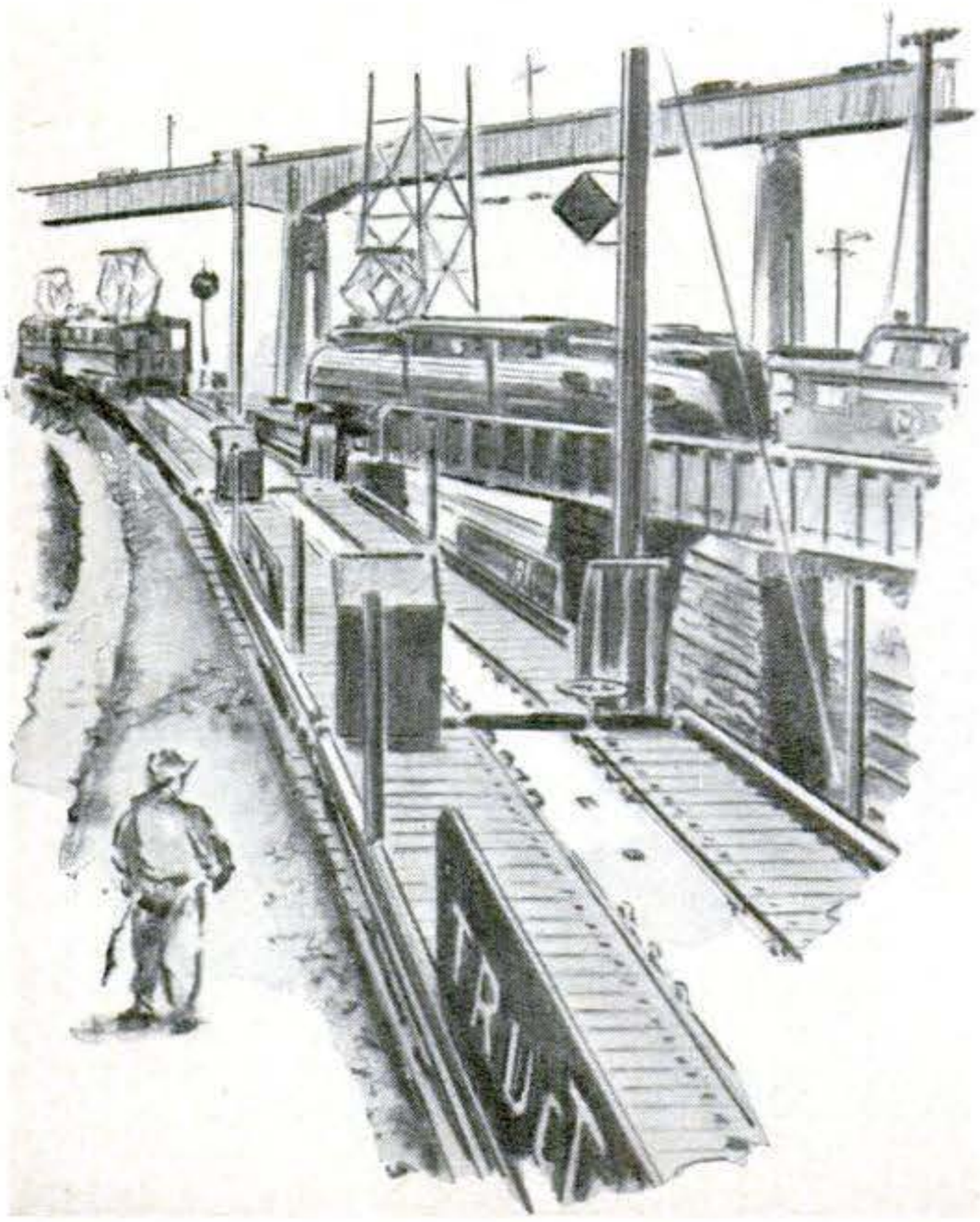
BY HAULING more than three-quarters of a mile of loaded truck trailers over its main line, daily, the Pennsylvania Railroad may already have added to your driving pleasure. And, if the predictions of its traffic department come true, this one railroad should take 2,000 trailers off crowded New York-Chicago highways by 1957.

The Pennsy calls this new operation "TrucTrain"—on other railroads it's "Piggy-back" or "TOFC" (trailers on flatcars).

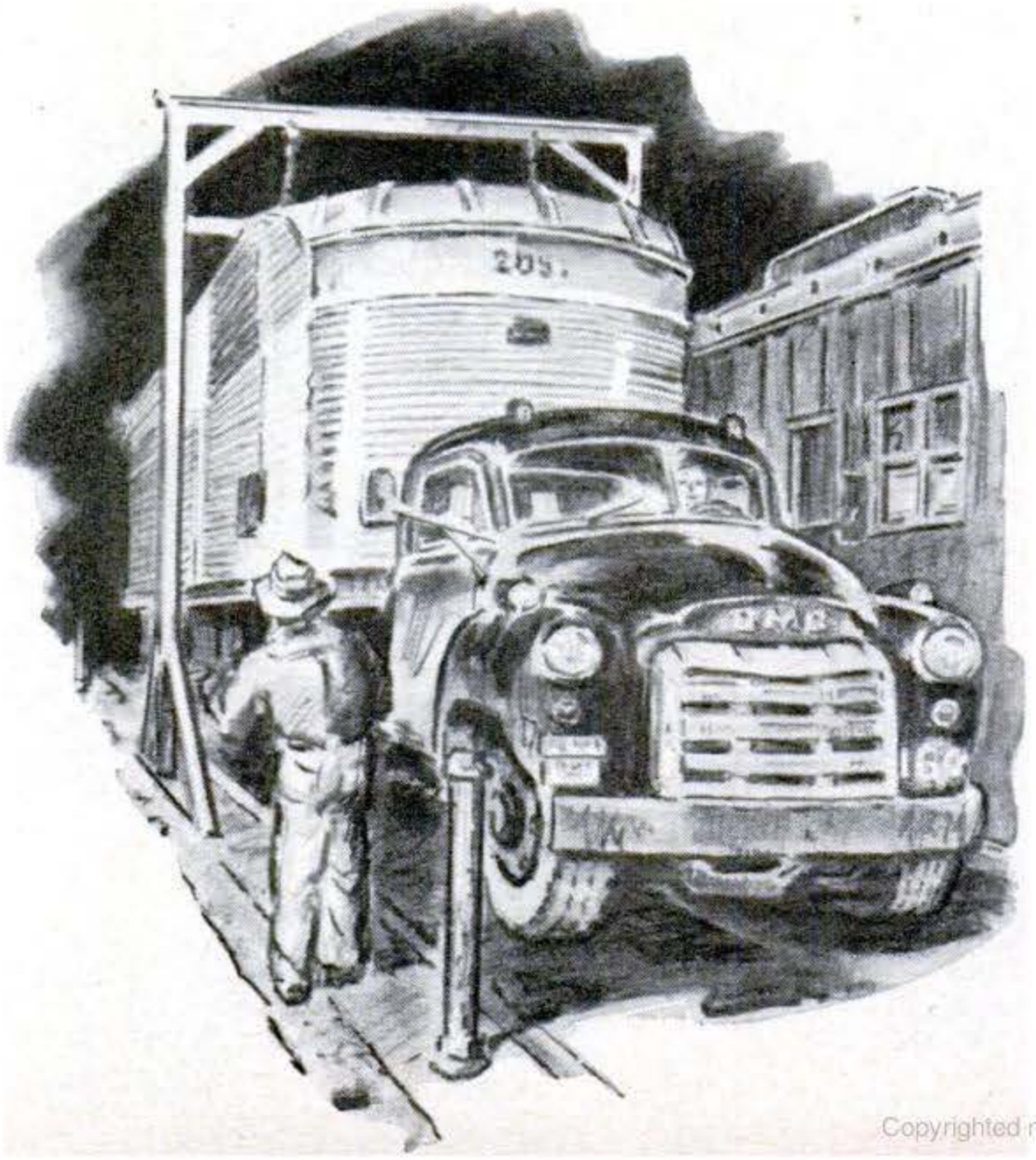
Hauling truck trailers by rail is nothing new; the railroads have been doing it for more than 20 years. The big difference today is that the Pennsy, along with other lines, isn't limiting the service to its own trucks—a setup that competing highway carriers have always fought bitterly.

How trucks are loaded for the world's biggest

LATE IN AFTERNOON, an electric locomotive shoves flatcars onto six TrucTrain receiving tracks at Kearny, N.J. Brake staffs and end bridges are lowered so trucks can back aboard.



TRUCTRAIN TERMINAL accepts shipments for Chicago until 10 P.M. Trailers are weighed to determine railroad charge, are then hauled under this gantry to check clearances.



Copyrighted material

Cross-Country Freight

watch first west- and eastbound TrucTrains pass each other on Pennsy's Brilliant Bridge.

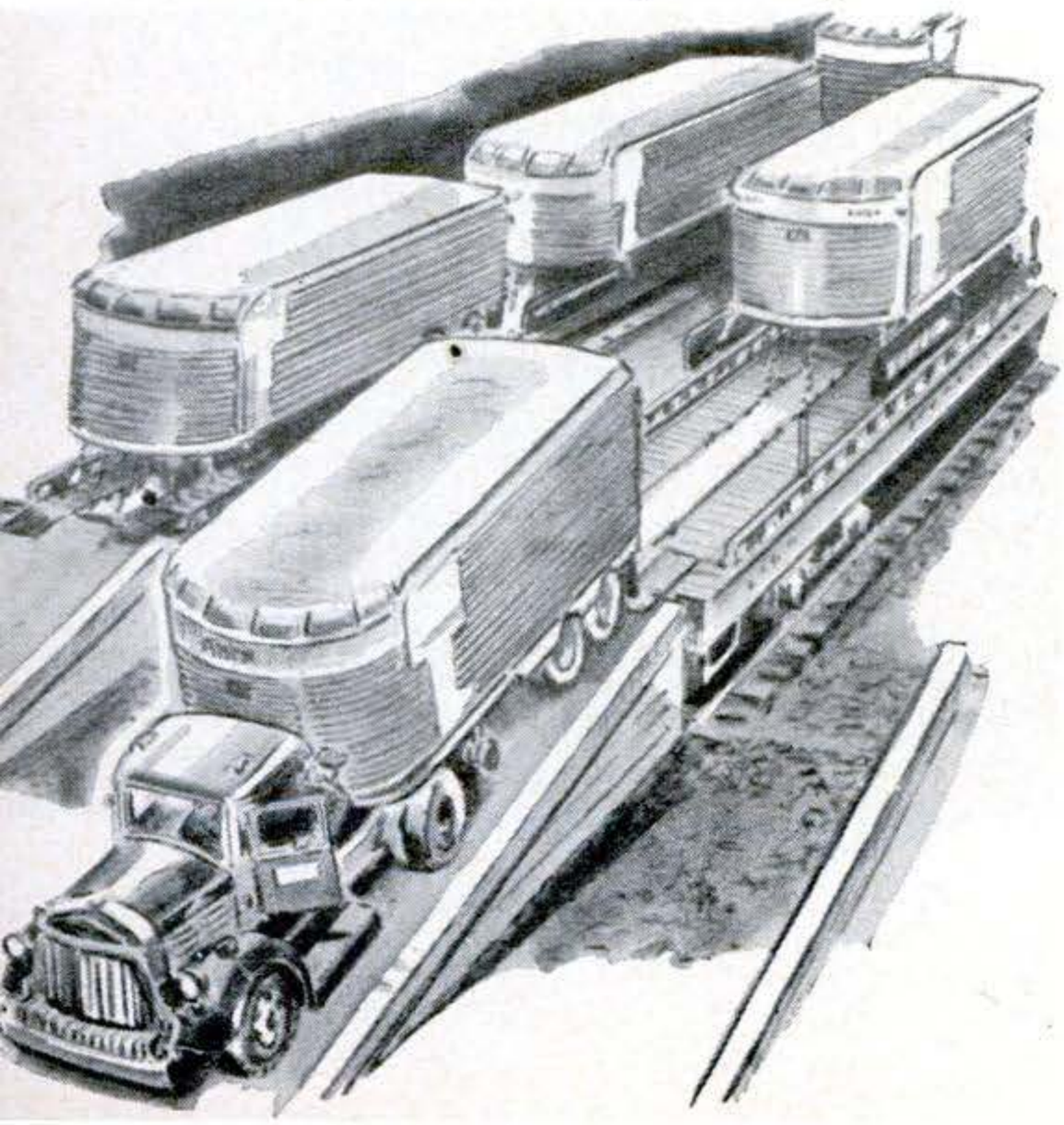
With TrucTrain, any common-carrier trucking outfit can put its trailers aboard a specially designed flatcar and have them whisked from New York or Philadelphia to Chicago in 29 hours.

A saving of about 10 hours over present all-highway schedules results. It also represents a slight saving in operating costs. The Pennsylvania Railroad charges $180 for its 904-mile New York-Chicago haul when the gross weight of the trailer is under 42,500 pounds.

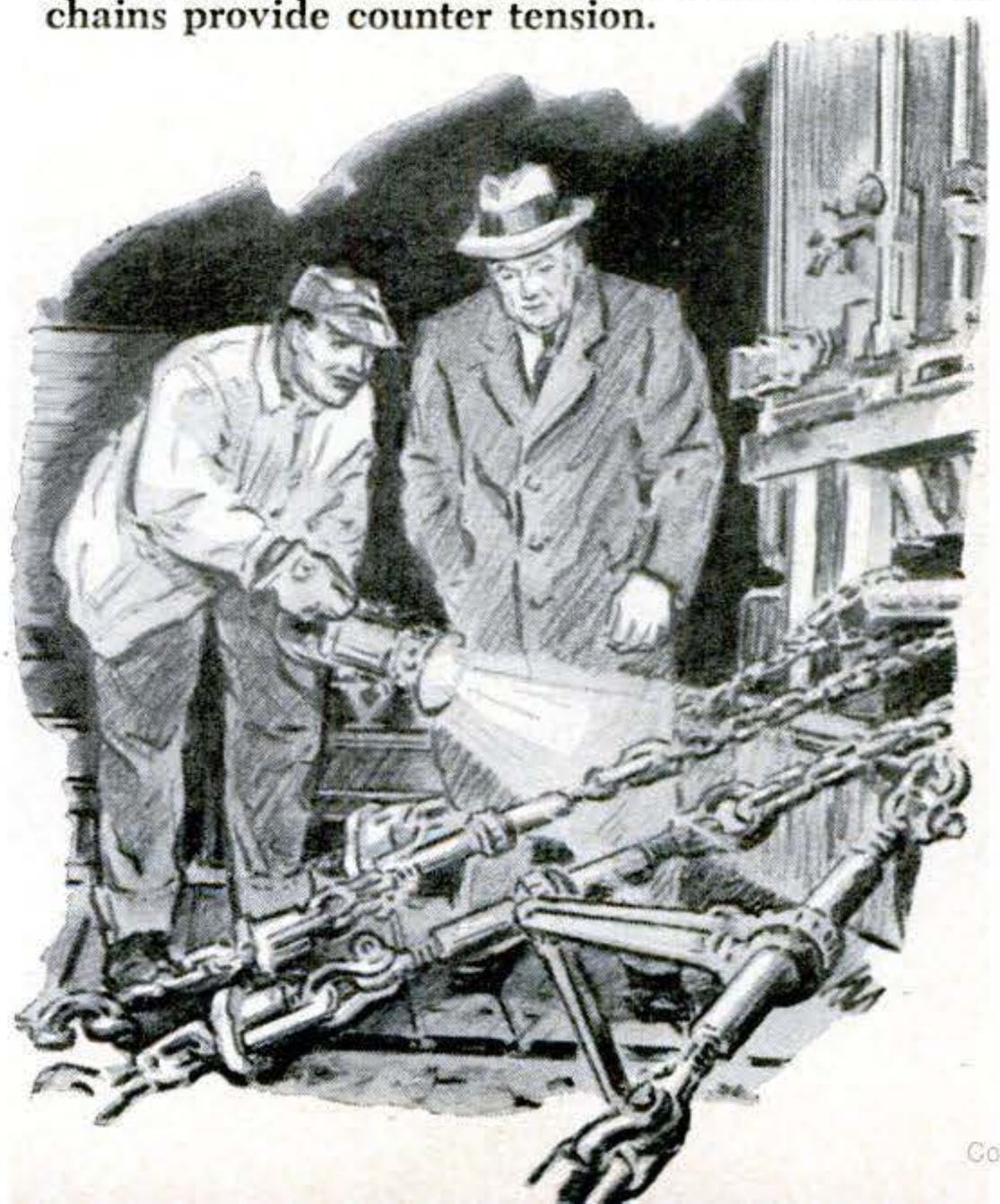
Given the anticipated traffic, the Pennsy believes that TrucTrain should net $100,000,000 annually within the next five years. Some optimists are even willing to bet that with this closely integrated shipping service, the old-time railroad freight shed may soon be a thing of the past.—*Henry B. Comstock.*

piggy-back ride—New York to Chicago in 29 hours

MOTOR CARRIERS' TRACTORS are uncoupled, and special, railroad-leased trucks back trailers up concrete ramps and onto flatcars. Shipments are now the railroad's responsibility.



TYING A TRAILER to a flatcar deck is a five-minute job. Screwjacks, fore and aft, lift trailer weight just off the wheels; turnbuckle-adjusted chains provide counter tension.



Copyrighted material

How They Produce Cars Nowadays

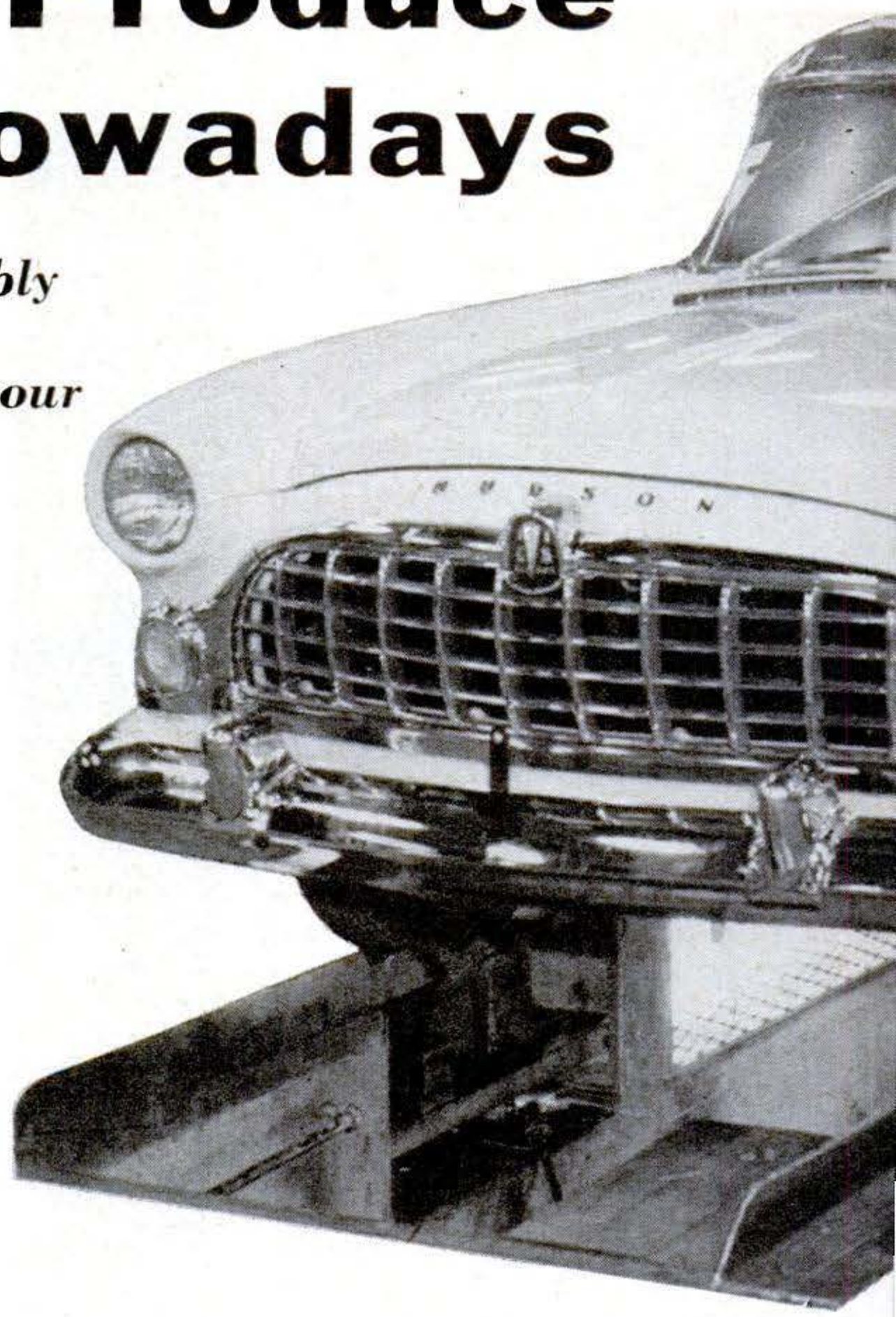
Take a look at a modern assembly line. In this cross between an army beachhead and a circus, your sedan draws its first breath.

By Frank Rowsome Jr.

ALTHOUGH mass-building cars is one of America's particular talents, the process is strangely unknown. Ask a man how he thinks his car was made and you'll likely get some shadowy images compounded of the Model T line 30 years ago and Charlie Chaplin being flummoxed by a monster machine. Actually, auto building has changed as drastically as cars themselves. Automation, new stamping and welding processes, and the steady refinement of assembly techniques have all reshaped the 1955 lines.

If you were to spend a week on a production line, you would no longer consider the familiar sedan in your garage a loyal but highly individual baby. You'd see it, instead, as a tricky contrivance of sheet metal, iron and glass—a bundle of nasty problems neatly solved.

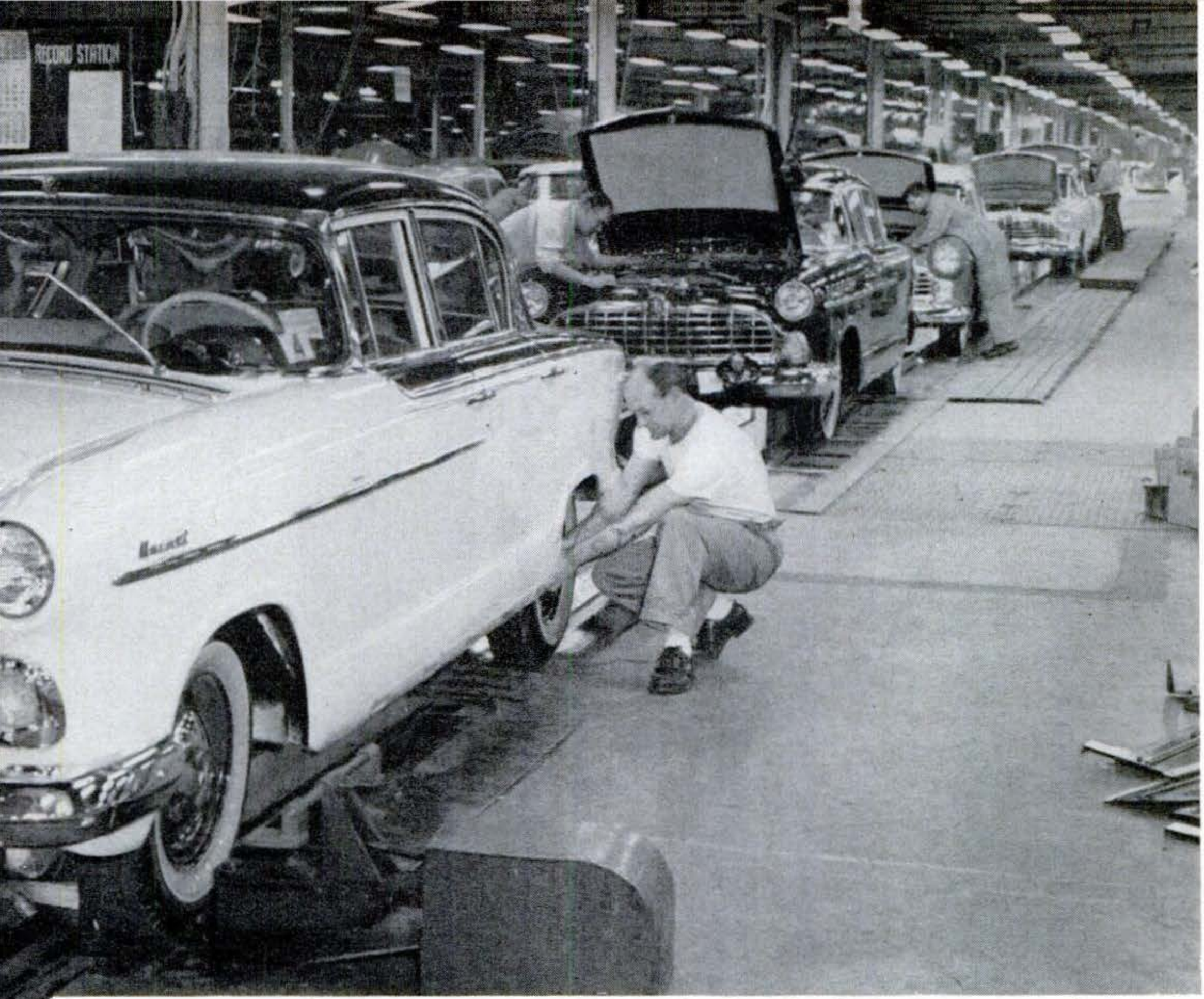
You'd see it as something that was born in a couple of noisy hours, created by perhaps 2,500 pairs of hands, many of them female. You'd realize that its shape and behavior weren't just the doing of designers and stylists, but were controlled by inexorable laws governing what can be done quickly on an assembly line. You'd discover, too, that although your sedan may be as distinctive to you as a favorite fedora, skilled people worked hard to keep it from having any more individuality than the third egg from the left in a carton.



Nash-Hudson plant. The American Motors factory at Kenosha, Wis., is a good place to see new-style car building. Nashes, Hudsons and Ramblers are intermixed on the same final line there. If you count by major engine differences, this plant simultaneously manufactures six different kinds of cars. All these cars have "single-unit" bodies, which means that the classic dodge of slapping a frame on a conveyor and then screwing bits onto it won't work—because there is no separate frame.

This plant is geared to crank out 1,000 cars a day. Although other plants are bigger, it is extremely large. Everywhere inside the gates you detect a big-league approach. Eight or 10 enormous factory buildings sprawl across the landscape; a six-stack powerhouse hums with kilo-

Copyrighted material



TEN MINUTES OLD, this car, one of a thousand built each day, is about to graduate into the workaday world. Men shown are final inspectors who check hundreds of points on each car; more than half of them are in the pits underneath. Mechanism in foreground aligns the wheels.

watts; miles of railroad sidings snake between and through buildings; block-long queues of big trucks wait, bumper to tailgate, for their turn at the unloading docks.

The yards have the organized semi-confusion of a beachhead on D plus 3. Inside, you find that squirreling stuff away against the moment when it will be needed is a major part of the job. Racked engines and transmissions, heaped front ends, and mountains of wheels fill floors of big buildings, because a mass-production line is really a kind of gigantic and exacting cafeteria. Sad is the lot of the cook who doesn't have his chops—or castings—ready.

Central nervous system. Tucked off in a corner you find the offices of Al Pryse, a harried but courteous man who, with about 16 assistants, functions as the factory's central nervous system.

An order for a car is relayed from the dealer to Zone to Sales to Mr. Pryse. Knowing what kind of car is to be built, of what colors and trims, with what engine, axle, transmission and major accessories, his office then sends out instructions to each of the 26 places in the factory where different characteristics of a car are established.

At many of these remote places, workers load up subconveyors with the ingredients for this particular car. The subconveyors move in a synchronism calculated to bring each part to its own spot on the final line at just the right instant for the ordered car to flow together.

Major parts for the three makes come

Copyrighted material

PULLING STRINGS installs windshield. Man outside holds glass (already fitted with rubber channel) against opening. When loop of cord is pulled, rubber snaps around steel edge.

into Kenosha from all over the map: Hudson six-cylinder engines from Detroit, V-8 engines from Utica, Mich., big Nash and Hudson bodies from Milwaukee, and smaller bits from scores of places in the nation. The scheduling office makes sure that the right parts for your car reach the right spot at the right time.

Subconveyor lines hold different carfuls of parts. A front-end conveyor line, for example, is loaded up 200 cars away from final assembly, whereas other lines may be loaded 100 or 75 or even less cars back. This means that toward the end of a day, some pipelines are sequence-loaded with materials that are going to be used today and others with parts that will not be needed until tomorrow.

Scheduling instructions go out in code numbers on telautograph machines, complex gadgets that reproduce writing at the 26 locations about the factory. But they don't beautify a man's handwriting, and if a carelessly written code *7* is misread as code *1*, trouble can come popping.

"It sounds complicated," Mr. Pryse tells you with a smile, "but it works fine. Once in a blue moon somebody goofs and the wrong-colored wheels get loaded on the conveyor. We switch 'em later. Or maybe a car that's ticketed for an automatic transmission gets built with manual shift. The factory queries Zone to see if they'll accept it, and usually they will."

"With three different makes having six different engines all being built simultaneously, don't you ever accidentally put together a freak?"

"Nope. The system's pretty foolproof. Besides we really couldn't go far wrong —the parts wouldn't fit."

Cave of the welds. Next stop is where they build Rambler bodies, a vast and thunderous structure about as cozy as a dirigible hangar. It is a noisy, smoky cavern, peopled by goggled men (a few women, too) and by Indian files of big stampings marching overhead on conveyors. It's a place where you momentarily expect to be hit on the head from behind. Body fixtures—shapeless steel holding frames, covered with cam-locked clamps—march slowly along in orderly patterns over the floor.

The form of a car appears on them before your eyes: first the intricate underbody, then the "unisides" complete with doors and window openings, and then the big dished roof. It grows by several kinds of welding—arc in high-stress places, oxyacetylene for awkward locations, spot welding wherever practical. Mostly, great lobster-clawed spot welders bite the steel together in spurts of sparks. Elsewhere on the floor, grinders, inspectors, fillers and finishers swarm over the pewter-colored steel bodies as they inch along.

All the trimmings. Upstairs the bodies are cleaned, treated to prevent rust, and spray-painted—in part by darting automatic guns that squirt only when they "feel" a body going by. Two-toning calls for deft masking, not in the take-hours fashion that you or I would do it, but in fractions of a minute, using shaped aprons of cloth edged with adhesive. In the maze of mechanism it comes as a surprise to see occasional delicate handwork, as when wood-grain decals are adeptly stripped onto station-wagon panels.

Everywhere you see planning and deftness: when a girl or man needs a power tool, there it is floating in space a few inches away from the hand. Some workers take a 30-foot ride within each

Copyrighted material

body; some lean in the open doors, their feet neatly pacing the moving line; some hook on little castered seats and are towed along as they work. Windshield and rear-window glass, enclosed in rubber channel, is zipped into place within its metal frame when an encircling cord is pulled off, like the red tab on a pack of cigarettes. Then the finished bodies, calked and sealed, glide off to another building to meet their machinery.

Horsepower nursery. In the large buildings where engines are born the air is one of no-nonsense exactness. Parts fit just so, with no fiddling. Blocks from the foundry roll into elaborate face-bore-drill-ream machines that not only assail them with furious precision but also call for help if anything goes wrong. Engine build-up takes place on parallel moving lines: In go balanced cranks with flywheels and clutches pre-attached; in go rods and matched piston sets; on go cylinder heads, torqued up by nut runners.

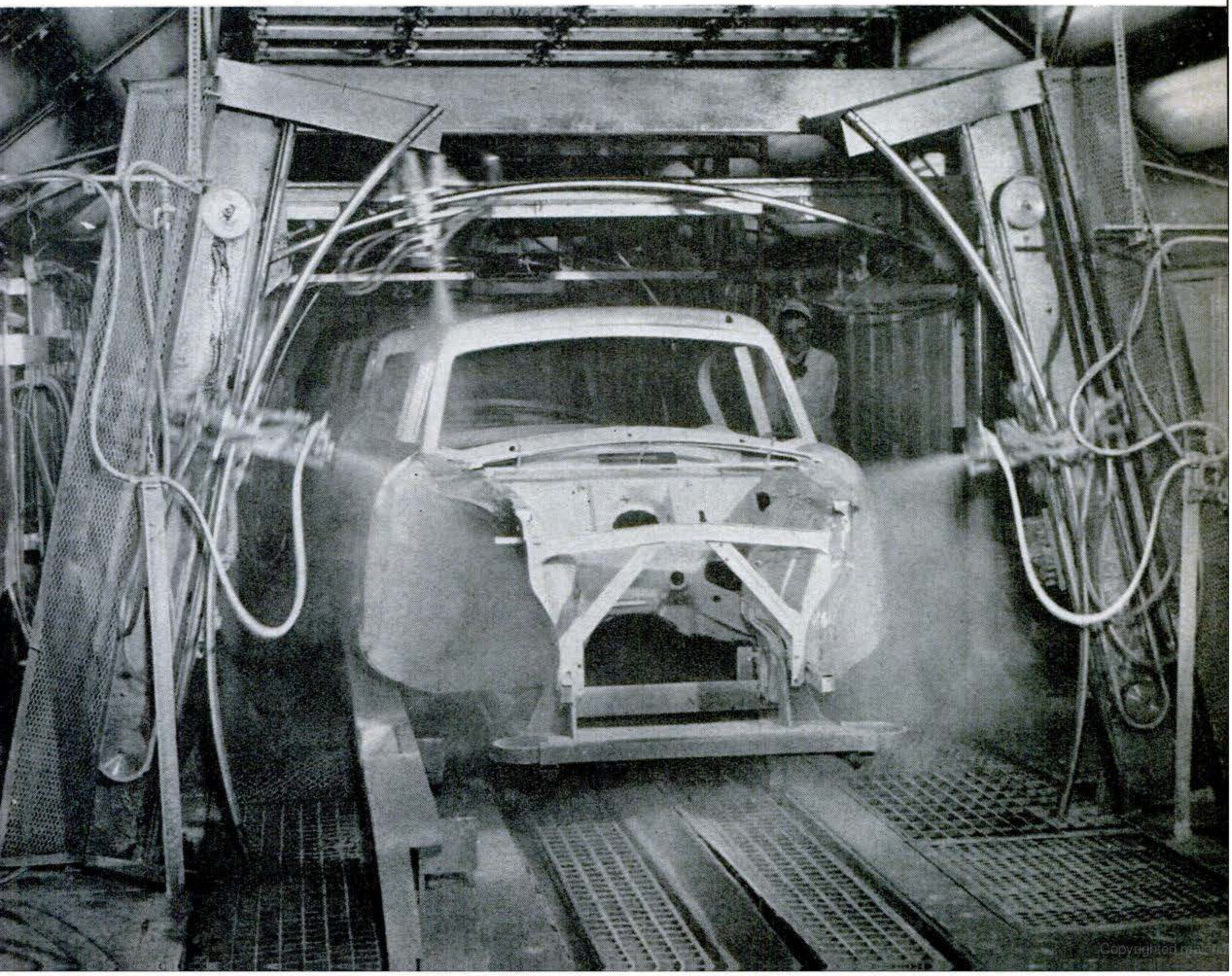
In Motor Test a man prepares a newly built engine for its first independent breath. In a few seconds he fits on water and exhaust lines, clips on a wire, swings a drain pan under the unplugged crankcase, and hooks a flowing oil pipe to the filler. (Any errant foundry sand or machining chips are flushed away.) On the carburetor throat he slaps a fitting that feeds cooking gas to the engine (it's safer indoors than gasoline), and touches the starter.

The engine starts. Instantly. Watching engines go by there for an hour, you note that they always start. "Well, why shouldn't they?" a workman says matter-of-factly. "Until the laws of physics get repealed, they can't *help* starting." Each engine runs at a brisk idle for 20 minutes, not for break-in but for hot setting of valve lash and spark timing.

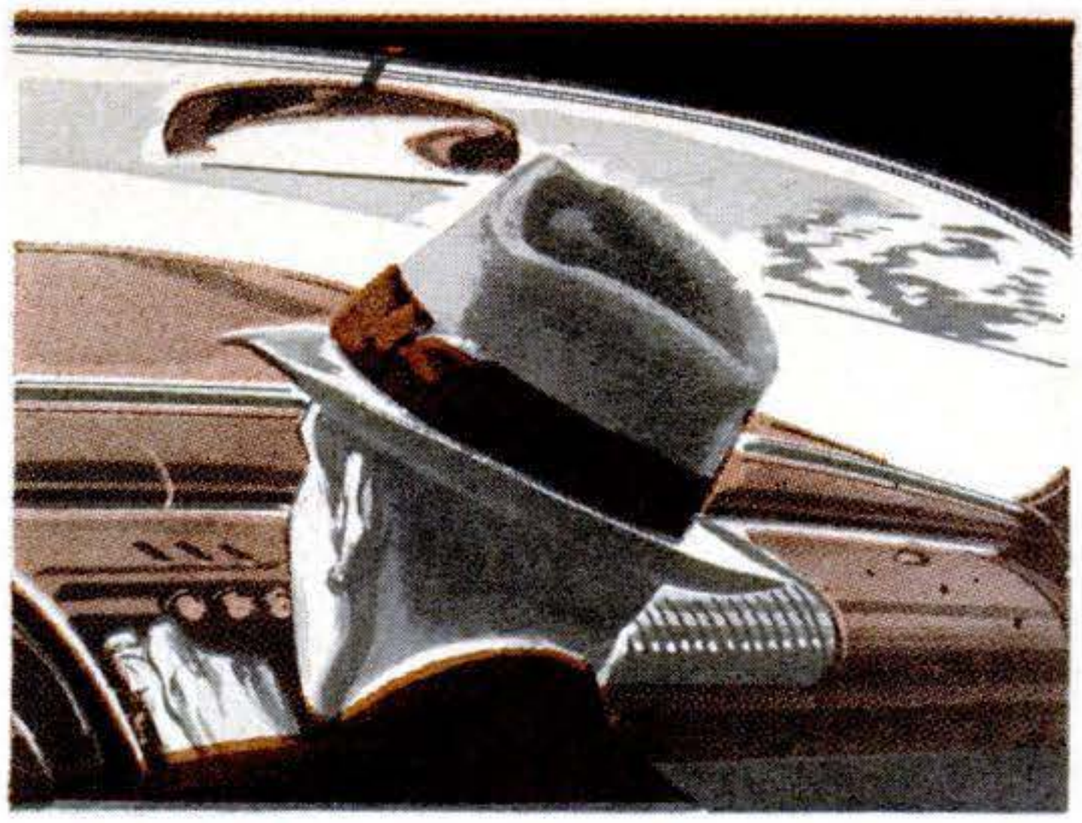
The big show. Elsewhere complicated lines are turning out rear axles, transmissions and steering gear. But a visitor

[Continued on page 254]

AUTOMATIC GUNS do part of painting job. Three shown dart rapidly back and forth on curved tracks. Top one automatically drops to do rear deck, and then retracts for spraying roof.



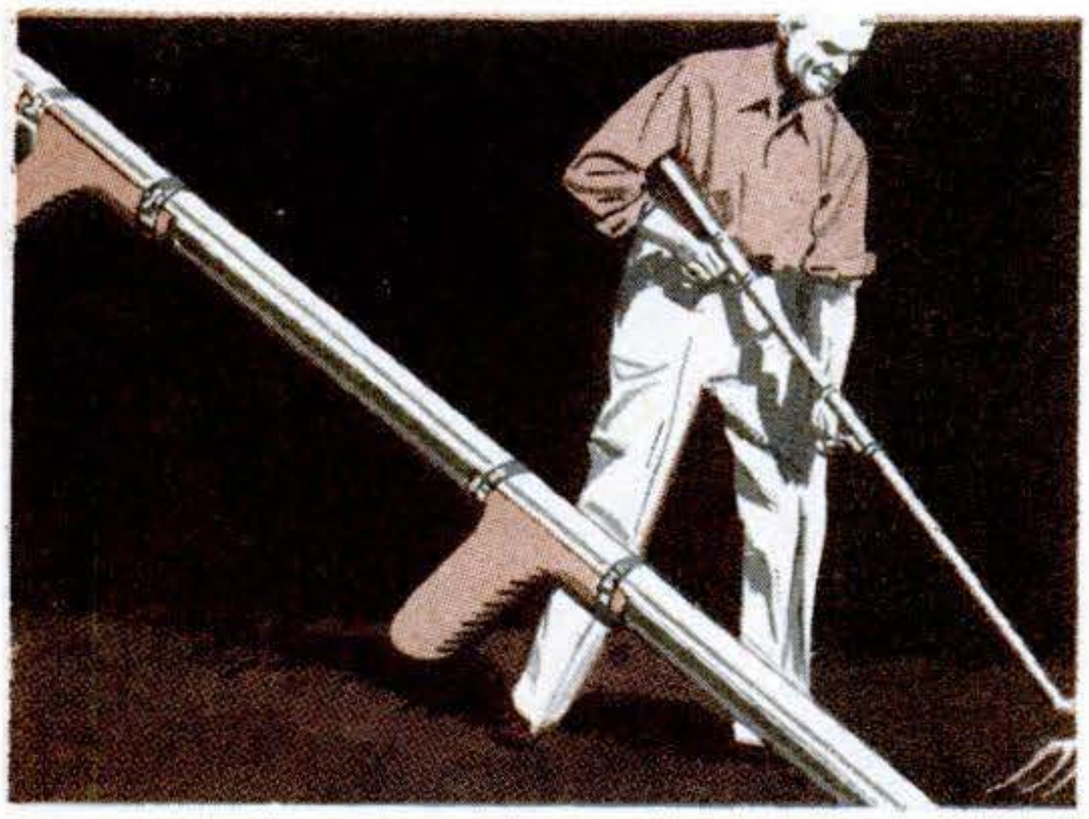
I'd Like to see them make...



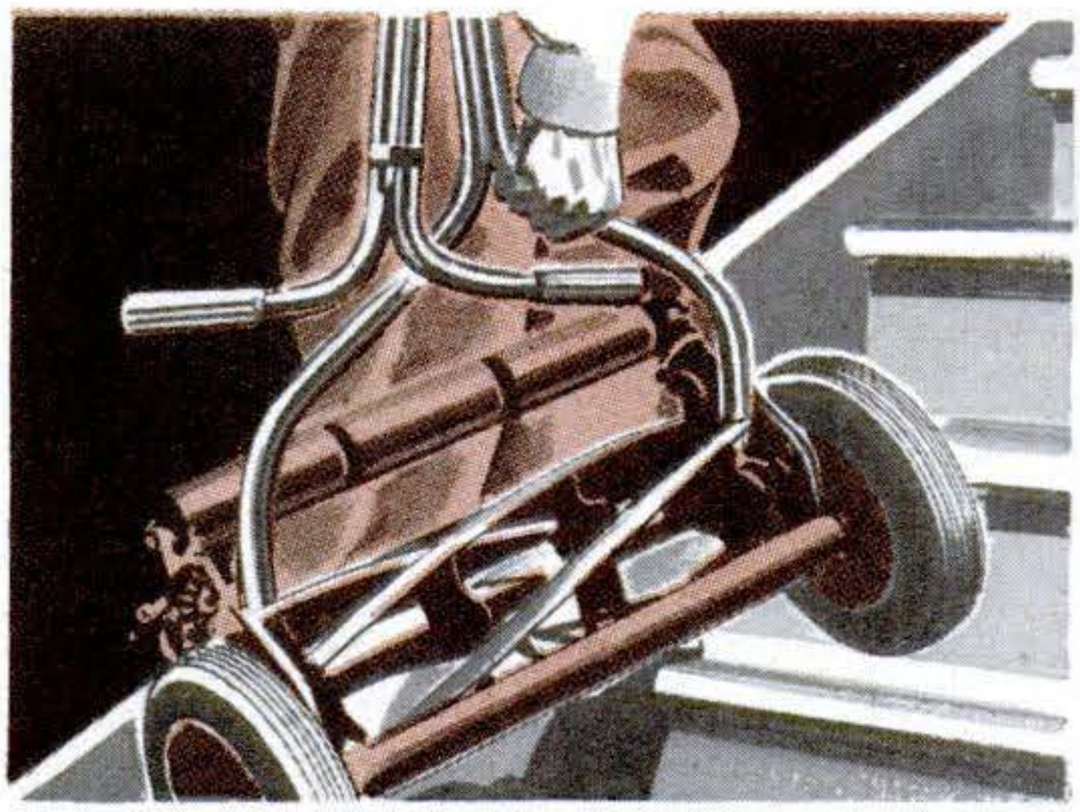
A GLOVE-COMPARTMENT LOCK wired to the car's ignition system. Electromagnetic, it would lock automatically as the motor is turned off.—*Pvt. D. J. Martinson, Ft. Belvoir, Va.*

A MAGNIFYING GLASS that could be worn on a fishing cap and swung down before one eye to leave the hands free for tying flies onto a leader.—*I. G. Aylward, San Diego.*

BUTTONS AND BUTTONHOLES on cloth strips for mending work shirts and coveralls. They could be sewed in place or ironed on with adhesive.—*W. I. Kaser, Baltic, Ohio.*



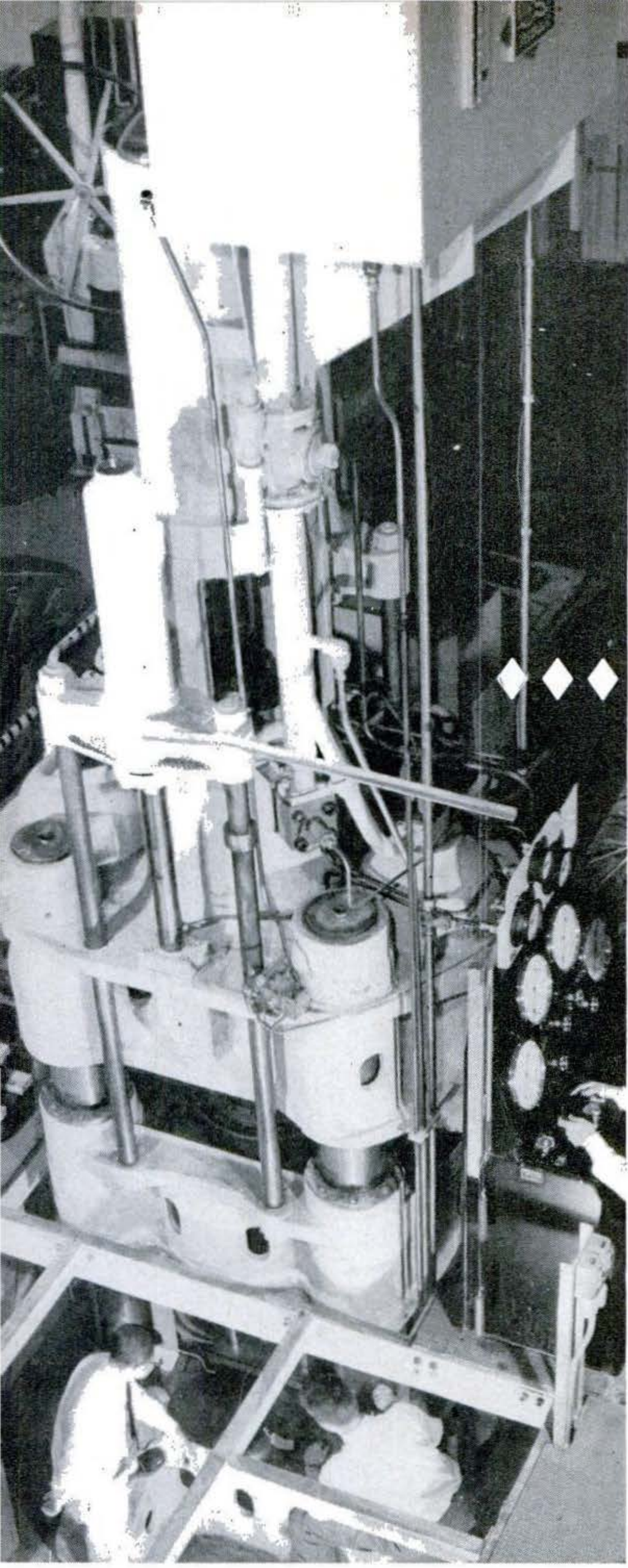
GARDEN-TOOL HANDLE GRIPS shaped like a pistol butt. They could be made of plastic with a metal collar for fastening to the wooden handle.—*B. M. Franklin, Hunter, Okla.*



A LAWN MOWER WITH A HANDLE that folds in half for carrying up basement stairs, then locks rigidly at full length for mowing.—*Charles E. Mieras, Grand Haven, Mich.*

Everyone has his own pet idea of a gadget that he would like to see in general use. The five ideas illustrated above were suggested by POPULAR SCIENCE MONTHLY readers. What is *yours?* We will pay $5 for each one published. Please use Government postcards only. Write name and address clearly. Contributions cannot be acknowledged or returned.

Copyrighted material



MIGHTY 1,000-TON PRESS makes diamonds in huge General Electric Research Laboratory. The two-story-high machine applies terrific pressure and heat to ingredients, in pit beneath openings in floor. For safety in case things fly, workers leave pit and run press by controls elsewhere, such as wheel on which man's hands rest at lower right of this picture.

COW BARN houses diamond-making plant of Vilella and Tomarkin, seen standing in doorway leading to modest 300-ton press with which they turn ordinary carbon into tiny gem stones.

Diamonds Are Where You Make Them

Success has crowned science's efforts to duplicate nature's prized gem in the laboratory.

By Herbert Yahraes

DIAMONDS have cropped up in odd places—among them, the eye of an Indian idol, the farm of a poor Dutch settler in South Africa, and certain meteorites. But for sheer unlikeliness, nothing beats the spots where the newest discoveries have been made.

One of these new diamond mines is in a famous laboratory. The other is in a cow barn. Adventurous scientists in both these places have finally succeeded in

Copyrighted material

Here's how they make diamonds in a barn

THIS BLACK STUFF, carbon from sugar, is raw material for diamond makers Vilella and Tomarkin. Batch shown above, they say, is enough to yield at least 25 carats of diamonds.

AT CONTROLS of their apparatus, Tomarkin (left) regulates current supply, and Vilella turns handles that operate the press, partly visible in the foreground at extreme right.

making diamonds—no mere imitations, but real ones.

You wouldn't stop to look twice at the new stones—all except one would be classified as diamond dust, and even that one weighs less than 1/100 of a carat. Another stone nearly the same size slipped away from someone's nervous fingers and was lost forever in the dust on the laboratory floor.

You could buy an equivalent amount of the diamonds produced so far—hundreds in each place—for perhaps $10 or $20. But the potential value of the processes for making them is enormous.

When General Electric held a press conference in mid-February to announce its achievement, a uniformed guard kept watch as reporters looked at the stones through microscopes. And the scientists in the cow-barn laboratory—who claim to have made diamonds before GE—have worked on a secluded estate protected with floodlights, watchdogs and a rack of rifles hanging near the diamond-producing press.

Diamond making has been one of man's recurrent dreams because these rare and precious stones are composed of carbon, and any organic material—a bone, a stick, a piece of wool—can be reduced to carbon simply by charring. Graphite in your pencil is carbon; so, mostly, is coal.

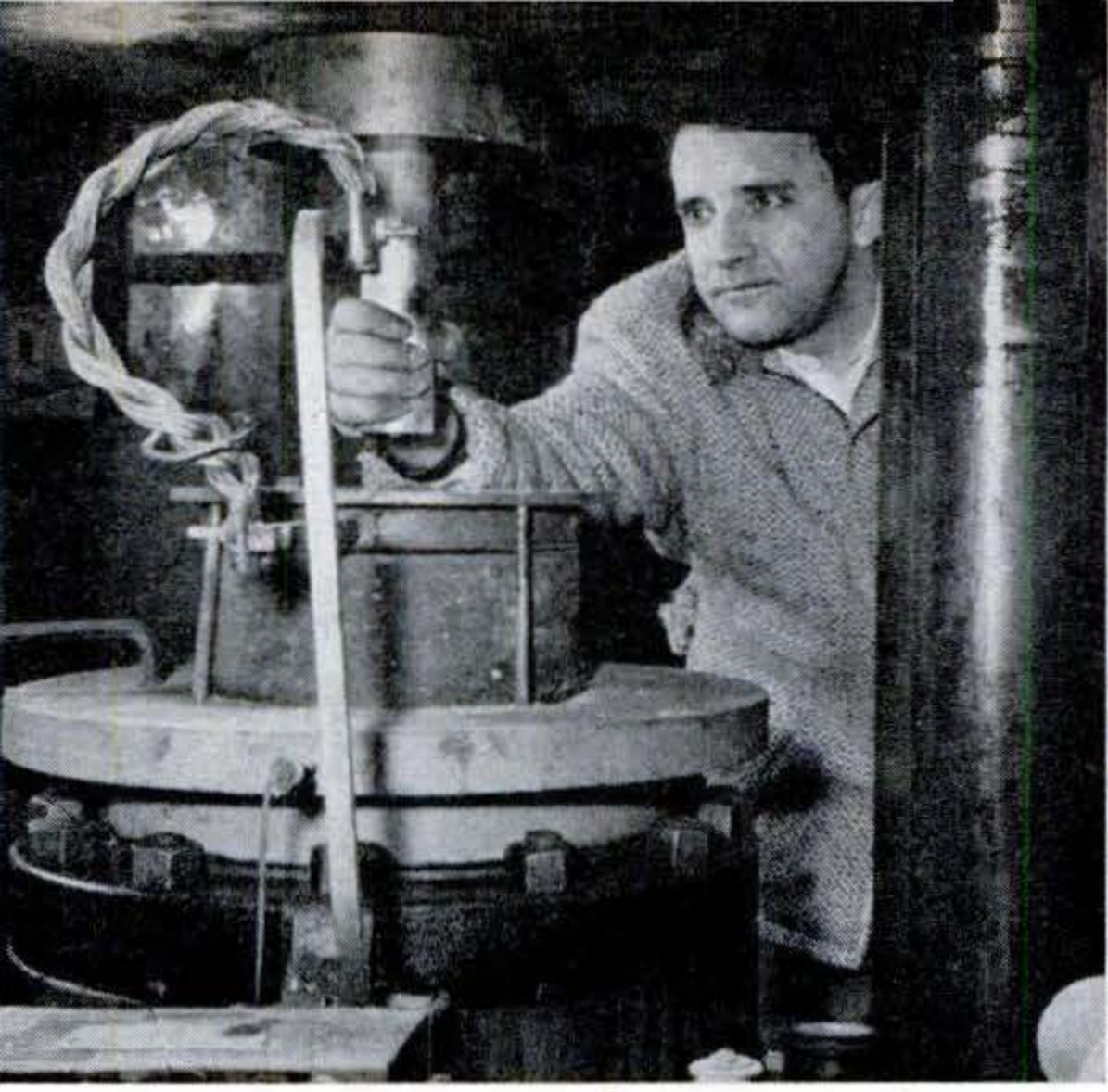
The difference between cheap and costly kinds of carbon lies in how their atoms are arranged. Immense heat and pressure can change the atomic pattern, or lattice, of ordinary carbon into that of the diamond. Deep in the earth, nature probably made diamonds that way.

Some 75 years ago a young Scotch chemist, James Ballentyne Hannay, tried to do the same. Into a heavy wrought-iron tube he poured hydrocarbons, bone oil and lithium. Then he welded the tube shut and threw it into a furnace. Eighty times he performed this dangerous experiment.

Most of his tubes exploded—like cans of beans in a bonfire—under the terrific pressure built up as they became red-hot. Three tubes held. They yielded tiny fragments that 25-year-old Hannay claimed were diamonds. Other investigators, however, had no success when they tried his method.

A later, more celebrated attempt, by Henri Moissan in France, stemmed from the observation that some meteorites contained tiny diamonds. To duplicate what had happened in space, Moissan

Copyrighted material



ALUMINUM CHAMBER, being inserted in press, contains ingredients to be subjected to big squeeze. Electric current, fed through cable meanwhile, raises them to high temperature.

AFTER THE SQUEEZE, Vilella slices chamber open with ax blade, and Tomarkin examines product —in this case, a metal alloy. Diamond-making chambers are smaller, but procedure is same.

first dissolved carbon in molten iron. Then he plunged the white-hot solution into a cooling bath.

Sudden chilling from the outside, he expected, would make the solidifying material contract, and exert pressure on the hot inside. And when he dissolved away the iron of his miniature meteorite, he found what he believed to be microscopic diamonds, crystallized from the carbon.

Moissan went on to win the Nobel Prize in 1906 for his discovery of fluorine and his development of the electric furnace. But whether or not his "diamond" crystals really were diamonds is still disputed.

Today's diamond makers owe most to another Nobel Prize winner, Percy Williams Bridgman of Harvard. When Bridgman began his work, the highest pressure a scientist could reach and measure was something like 75,000 pounds per square inch (psi). Bridgman extended this to the almost unbelievable figure of 6,250,000 psi.

GE DIAMOND 1/16 in. long, at bottom of magnified view, is compared to diamond phonograph needle.

The Harvard physicist was engaged in pure research. He didn't set out to do anything that would have immediate practical value; he harnessed high pressures because they were a tool for investigating the structure of matter. Strange things, Bridgman demonstrated, happen in the world of the super-squeeze. At 30,000 psi, for example, water freezes not at 32° but at eight below zero. Furthermore, a new kind of ice appears—one that is heavier than water instead of lighter. As the pressure increases, still different kinds of ice are formed: six altogether.

Carbon, in the form of graphite, was one of the materials that Bridgman worked with. He was curious, of course, to see if he could turn it into diamond. So were three commercial companies—General Electric, Carborundum and Norton. With their financial support, he developed apparatus that enabled him to put graphite under pressures as high as 450,000 psi, meanwhile subjecting it to enor-

Copyrighted material

mously elevated temperatures in the neighborhood of 5,000°F.

He made no diamonds, but he did show under what conditions of temperature and pressure *diamonds* would turn into *graphite,* and he was confident that the reaction could be reversed. "Further experiments," he reported in 1946, "are obviously called for."

A team of seven men was put to work at General Electric's vast research laboratory, at The Knolls, outside of Schenectady. Their mission: diamond making. The work began in 1950 under the supervision of Anthony J. Nerad, manager of the laboratory's mechanical investigations section. "When we started it," Dr. C. Guy Suits, GE's director of research, remarked recently, "I had the conviction it was as close to challenging the impossible as anything could be." But Nerad and Suits both knew that, even if the company failed to make diamonds, the experiments might lead to other valuable products.

HOW DO THEY KNOW they're diamonds? X-ray diffraction "fingerprint" of GE gem, above, clinches verdict of other tests.

For the diamond makers, the company bought a 1,000-ton hydraulic press, ordinarily employed for such jobs as molding metals. Such a press has a large ram—about 20 inches in diameter—but to reach superpressures the entire force of the ram must be concentrated against a tiny area.

In Bridgman's work with graphite, the ram acted against a thin piston, and the piston, in turn, bore down on the contents of the pressure chamber, which was 1½ inches in diameter and several inches long.

The walls of the chamber were made of specially treated steel and were surrounded by a supporting block made of five steel disks, each two inches thick. Even so, the tremendous pressures sometimes cracked both the central vessel and the surrounding block.

GE scientists ran into the same trouble. How they solved it is a trade secret, but they've been making their diamonds in a smaller chamber ringed by thick, concentric bands of metal, possibly a new alloy. Electrical heating can maintain a temperature of more than 5,000° within the chamber for a long period.

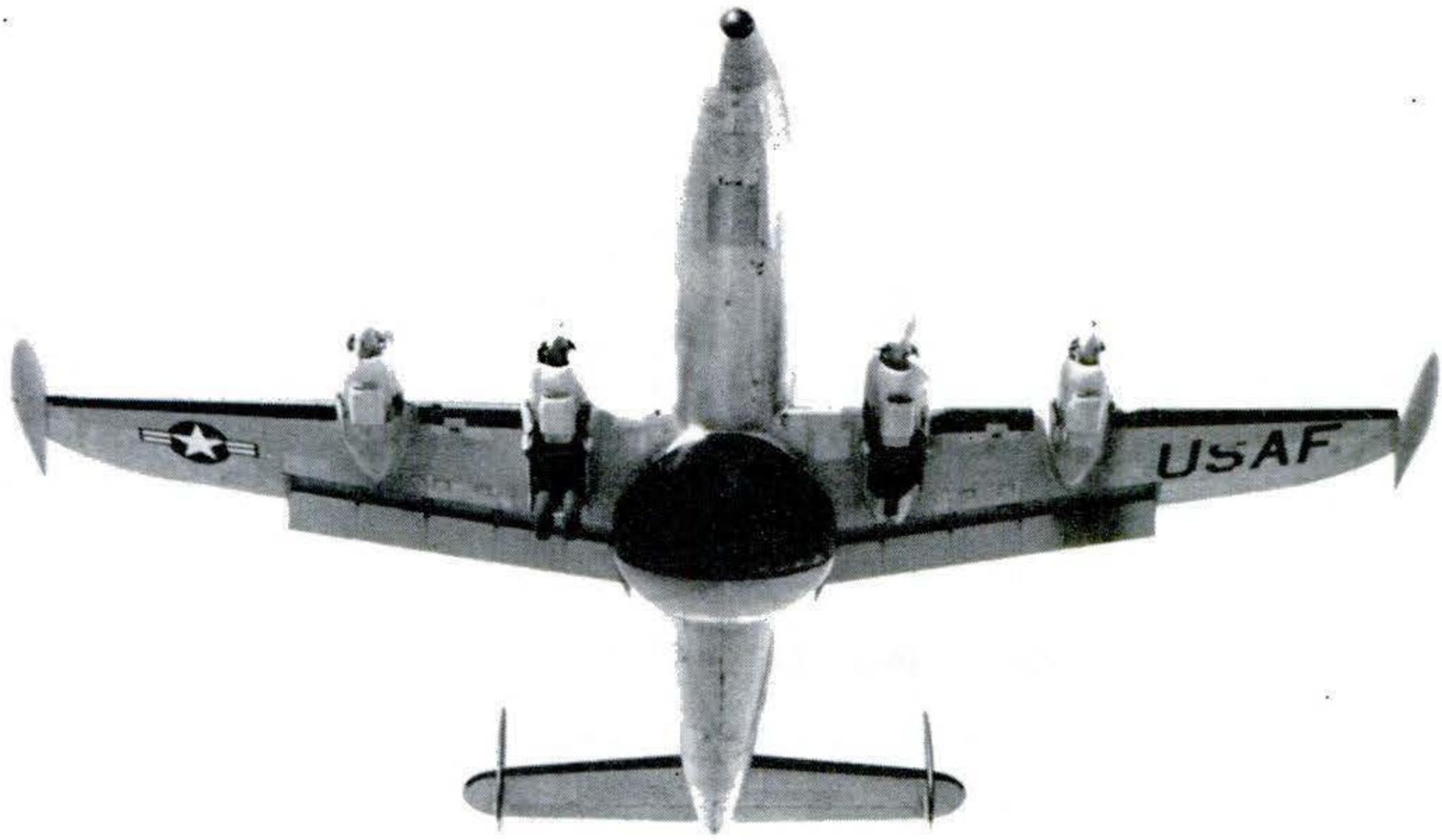
In this small chamber the scientists placed "a carbonaceous material." It may have been largely graphite, which Bridgman used; charred sugar, which Moissan used; or a variety of other carbon-containing substances. Real diamonds often contain some ash, made up of the oxides of various metals — iron, calcium, magnesium, aluminum, titanium—and of silica. So the scientists may have added a dash of similar ingredients.

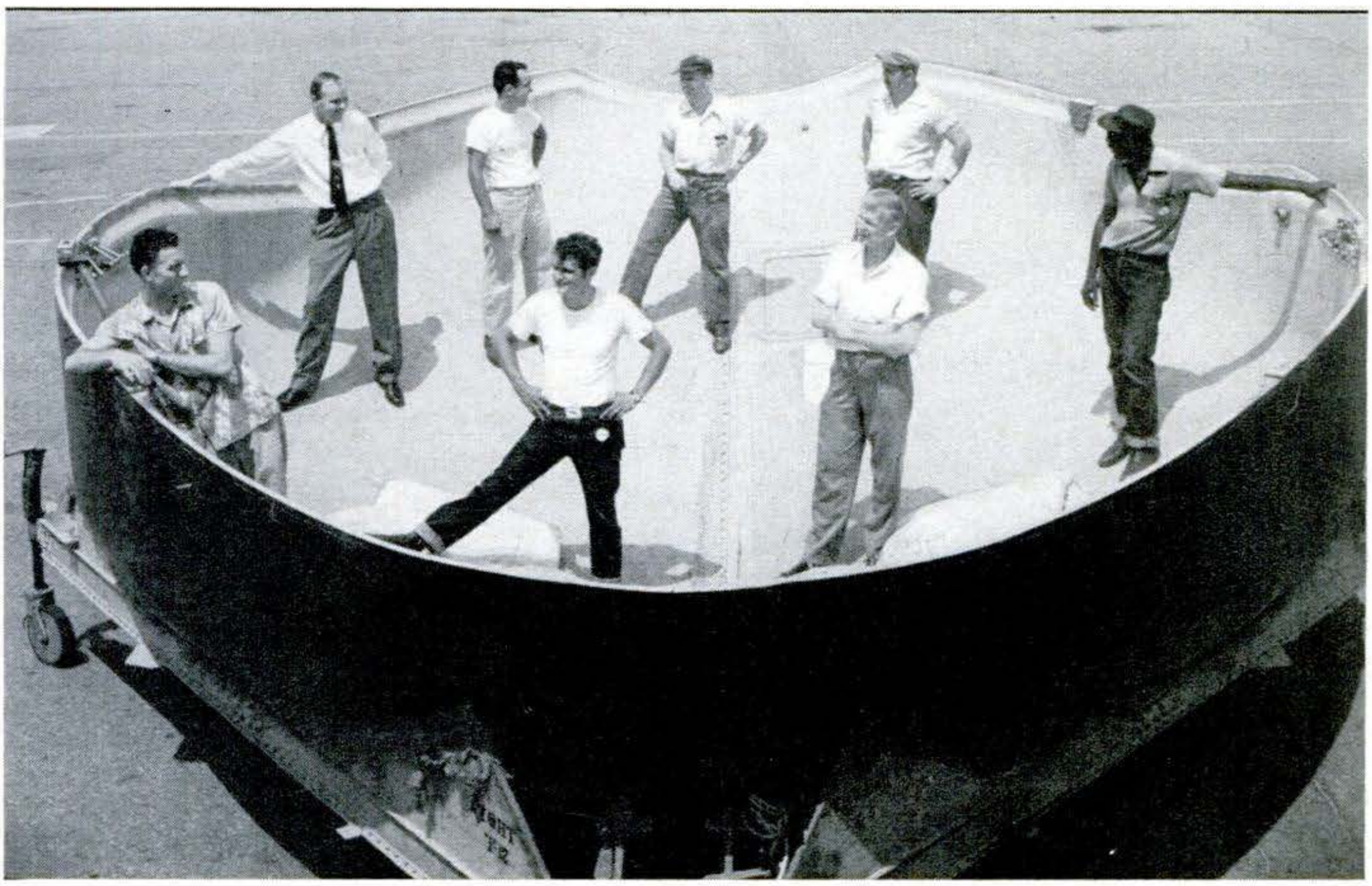
The early years brought many setbacks. Some were easy to explain—for example, a chamber would crack because it simply wasn't strong enough to withstand the pressure and heat. But for others there was no quick explanation. Earlier workers had calculated that graphite ought to become diamond under great heat and at a pressure of something like 450,000 psi. But to find just the right pressure and temperature—and just the right length of time to apply them—the scientists had to progress by trial and error.

Finally, one day last year, a 46-year-old physicist, Dr. Herbert M. Strong, removed the pressure chamber from the 1,000-ton apparatus, opened it, and found that the contents had solidified. That was an old story. But when Strong took the hard little capsule that had once been a soft "carbonaceous material"

[Continued on page 264]

Copyrighted material





Plastic Bubble, Swimming-Pool Size, Hides Radar

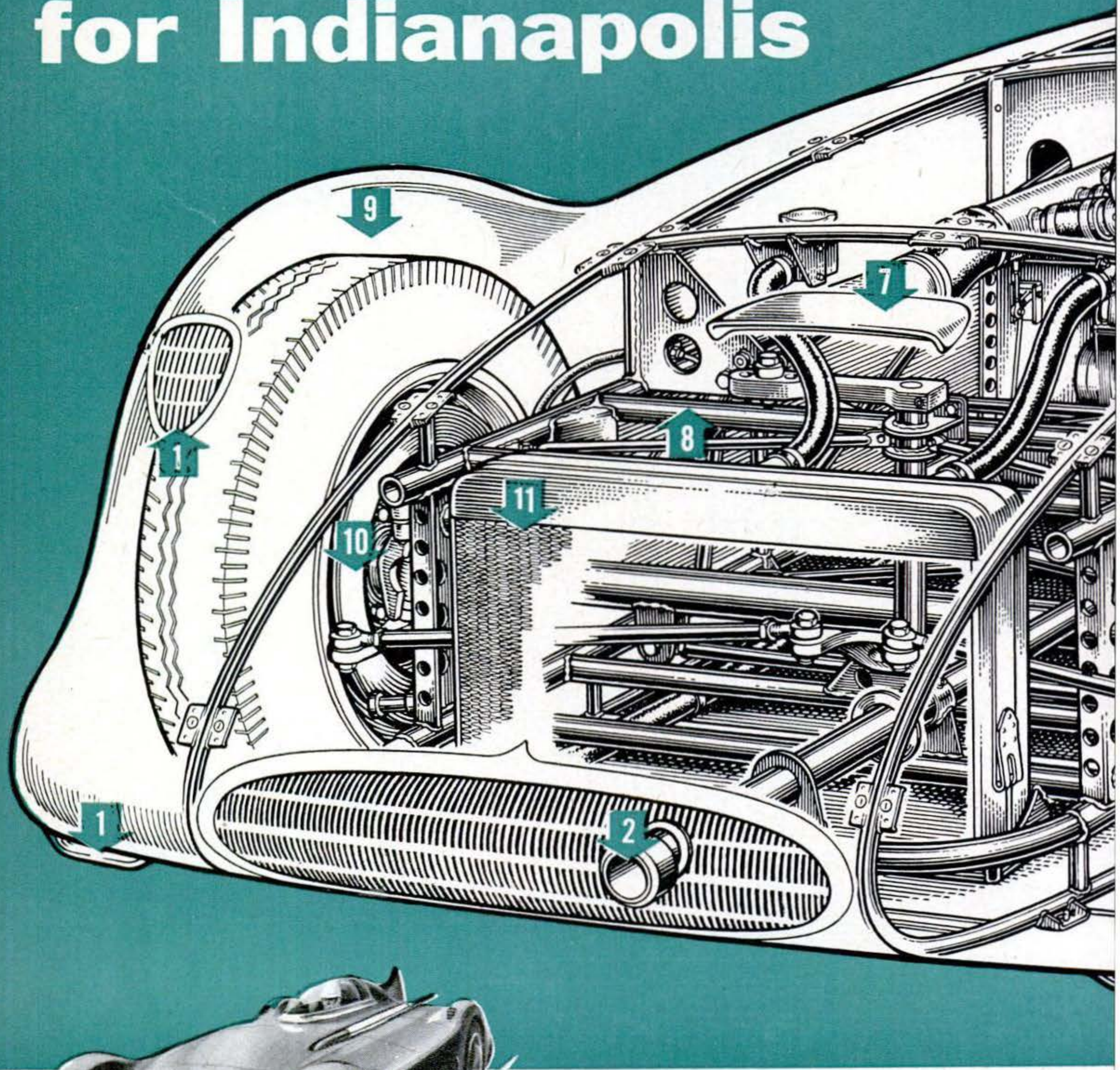
IT TAKES the biggest plastic part ever made for an airplane to cover the underslung radar antenna on one of the Air Force's picket planes. These Super Connies, crammed with six tons of electronic gear, recently began patrol off the Atlantic coast. From their guard lines high in the air, they detect aircraft many hundreds of miles farther away than land-based radars can.

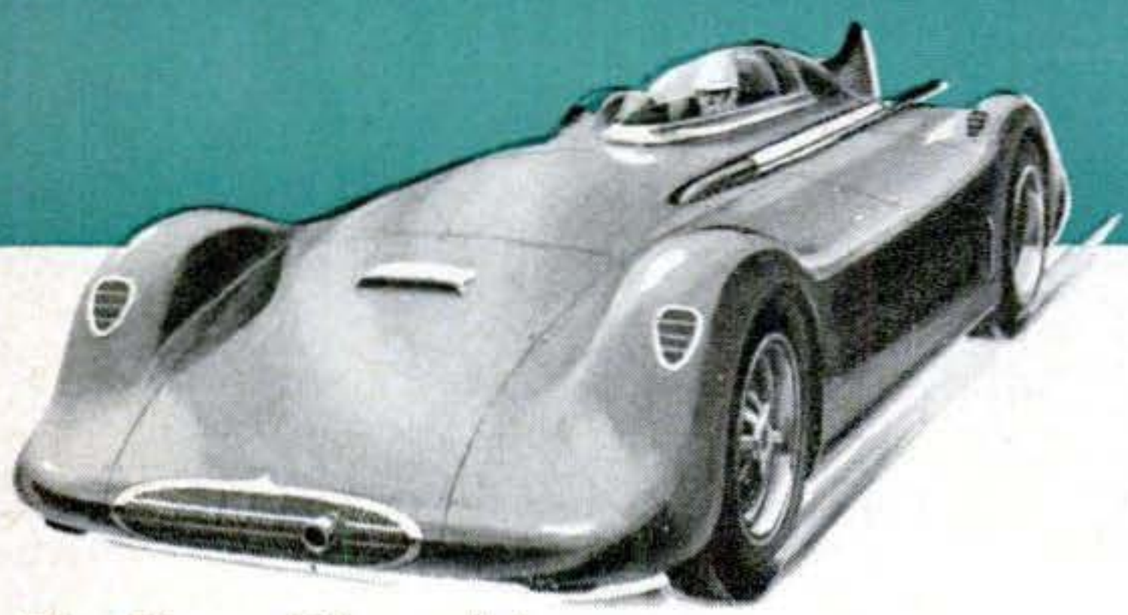
The giant bubble—ample for a family swimming pool—consists of two pieces joined together. Zenith Plastics Co. makes it.

Copyrighted material

Designer of speedway winners builds

A Racing Saucer for Indianapolis





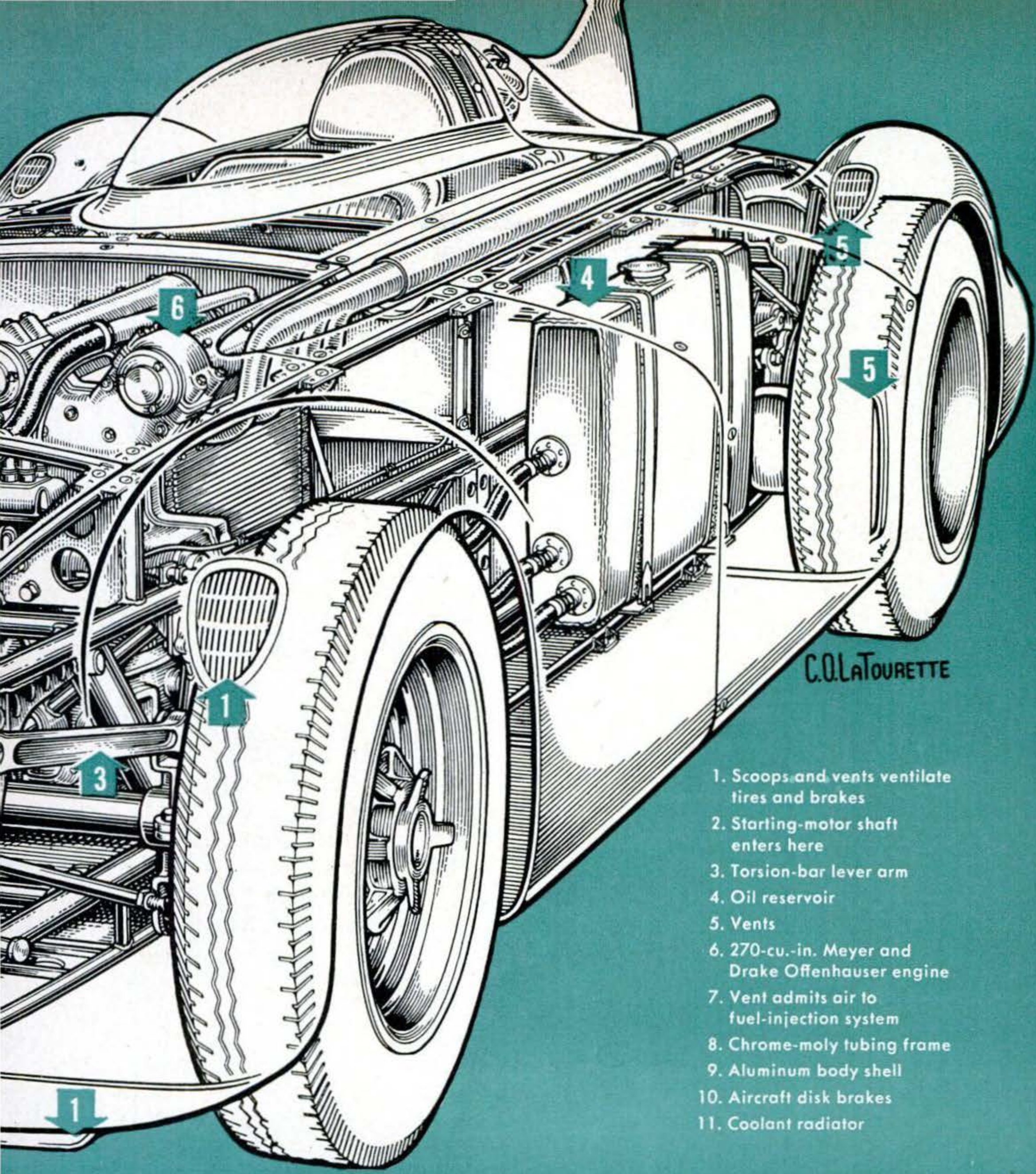
By Ken Kincaid

FOUR times in the last five years, cars built by Frank Kurtis of Los Angeles have won the classic Memorial Day race at Indianapolis. The soft-spoken, six-foot-four Kurtis at 47 is the dean of U. S. race-car builders. He has seen his creations lead the field more often than anyone else in recent racing history.

This year, instead of betting on the sure thing that his cars have become, he's taking his chances on a new and radical design—a fully streamlined car. Win or lose, it will be worth watching.

It is as startlingly different-looking as

Copyrighted material



1. Scoops and vents ventilate tires and brakes
2. Starting-motor shaft enters here
3. Torsion-bar lever arm
4. Oil reservoir
5. Vents
6. 270-cu.-in. Meyer and Drake Offenhauser engine
7. Vent admits air to fuel-injection system
8. Chrome-moly tubing frame
9. Aluminum body shell
10. Aircraft disk brakes
11. Coolant radiator

a flying saucer. It has enclosed wheels, a big tail fin and a plastic bubble over the driver.

Last October, Kurtis first outlined his idea for this car to millionaire sportsman Chapman Root of Terre Haute, Ind.

"It'll either be a bomb or an outright dud," he told Root. "But I think it'll really fly."

"You build it," said Root. "I'll buy it."

Kurtis has acted on the theory that if a little streamlining is good, a lot should be better. But complications result from improved streamlining.

Take, for example, the question of enclosed wheels. The exposed tires and brakes of an ordinary racing car are obviously responsible for a lot of wind drag. But tires and brakes take brutal punishment in a race. Plenty of fresh,

Copyrighted material

cool air can save them from quick destruction. Chopping off the unlimited supply of air they get when they're exposed may be risky.

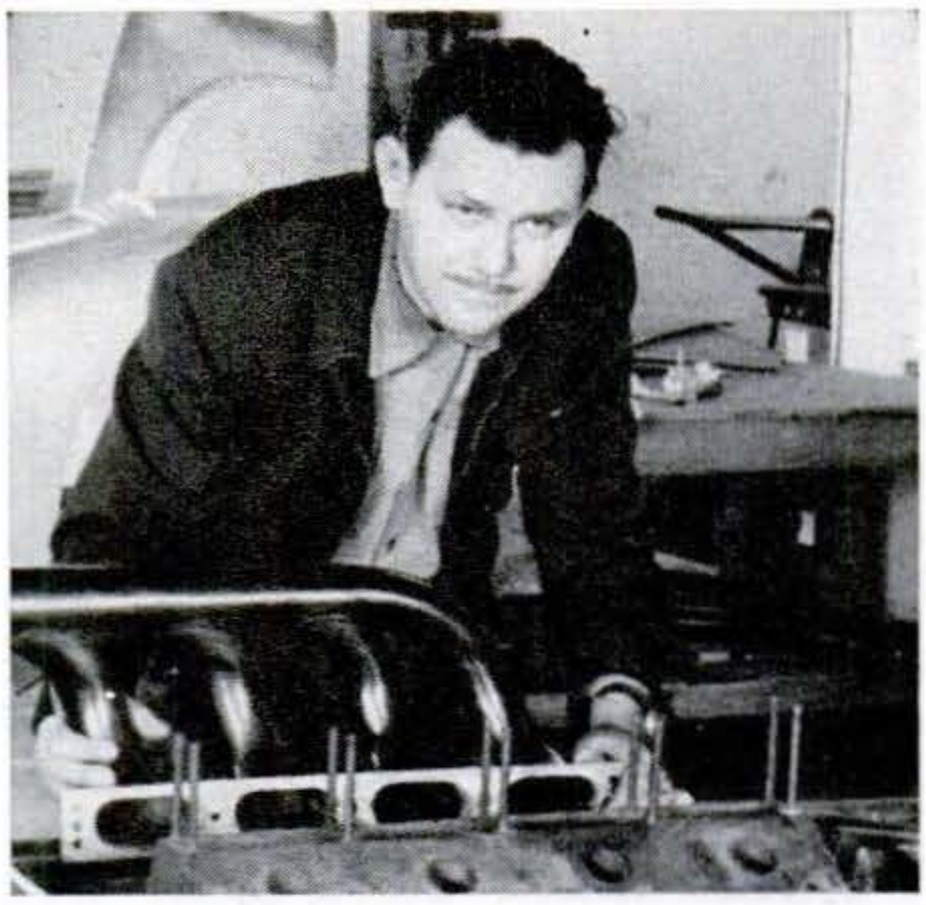
Kurtis feels that he has licked this problem. Above and below the tips of his car's front fenders, he has built openings that will admit huge amounts of fresh air to draw the heat off the front tires and brakes. The air then is guided into wide tunnels to cool the rear tires, brakes and rear-axle assembly.

Streamlining creates other problems, too. The more a car is streamlined, the less you can expect wind resistance to help slow it down. So the Kurtis-Root car will put a greater load on its brakes than previous Indianapolis cars. To minimize this disadvantage, Kurtis is using a new type of aircraft disk brake, with twice the usual friction surface.

The bubble over the driver's seat will counteract the wind drag of the traditional open cockpit. But, in a race, the car ahead may spew enough oil on the bubble to make it impossible to see through. So it would be dangerous in competition. Kurtis knows no reason, though, why the canopy can't be used during qualifying trials, when only one car at a time is on the track, and when the all-important starting positions are determined.

A front position in the starting lineup of the Indianapolis "500" means that the driver will have an easier time blasting through the fantastically fast and crowded first turn, and have less traffic to contend with as the ranks of cars stretch out. Kurtis figures that using the canopy should increase his car's speed by around a half of one percent.

This may not sound like much, but it's seven-tenths of a mile an hour, and starting positions are often decided by bare hundredths. For the "500" itself, the bubble will be replaced by a low windscreen.



FRANK KURTIS shows how exhaust header on Offy engine will occupy unorthodox position, rising upward alongside cockpit. Cooling air will keep heat from driver.

The big fin that tapers back from the streamliner's headrest will probably stir up hot arguments among the railbirds at Indy. Many of them are likely to think that it's a "stabilizer," like those used by straightaway record cars to keep them on the beam. But Kurtis maintains: "It's no stabilizer. I call it a 'spoiler' and I hope it works."

The big man whose cars have ruled the roost at the Speedway suspects that the vacuum that fills the wake of any fast-moving object cuts down the car's aerodynamic efficiency. So he has designed his streamliner's tail fin in a way that will partly spoil the creation of a trailing vacuum.

"Maybe it's just a wild guess," he says, grinning, "but anyhow I like the way that fin looks. It could mean a whale of a lot."

How big a difference the fully streamlined body will really make will not be known until driver Jimmy Daywalt takes the car around the Indy oval at thundering full throttle. Then the answer will be clear. Kurtis will be running five other brand-new racers that are practically identical to the streamliner except for the wheel-enveloping aluminum body. Like "controls" in a scientific experiment, they will put the finger on any advantages resulting directly from better streamlining.

Kurtis expects the streamliner to be faster by at least two percent, or nearly three miles an hour per lap. If Kurtis and Root, who has an initial investment of $25,000 in this car, have guessed right, big-time racing will never again be the same. END

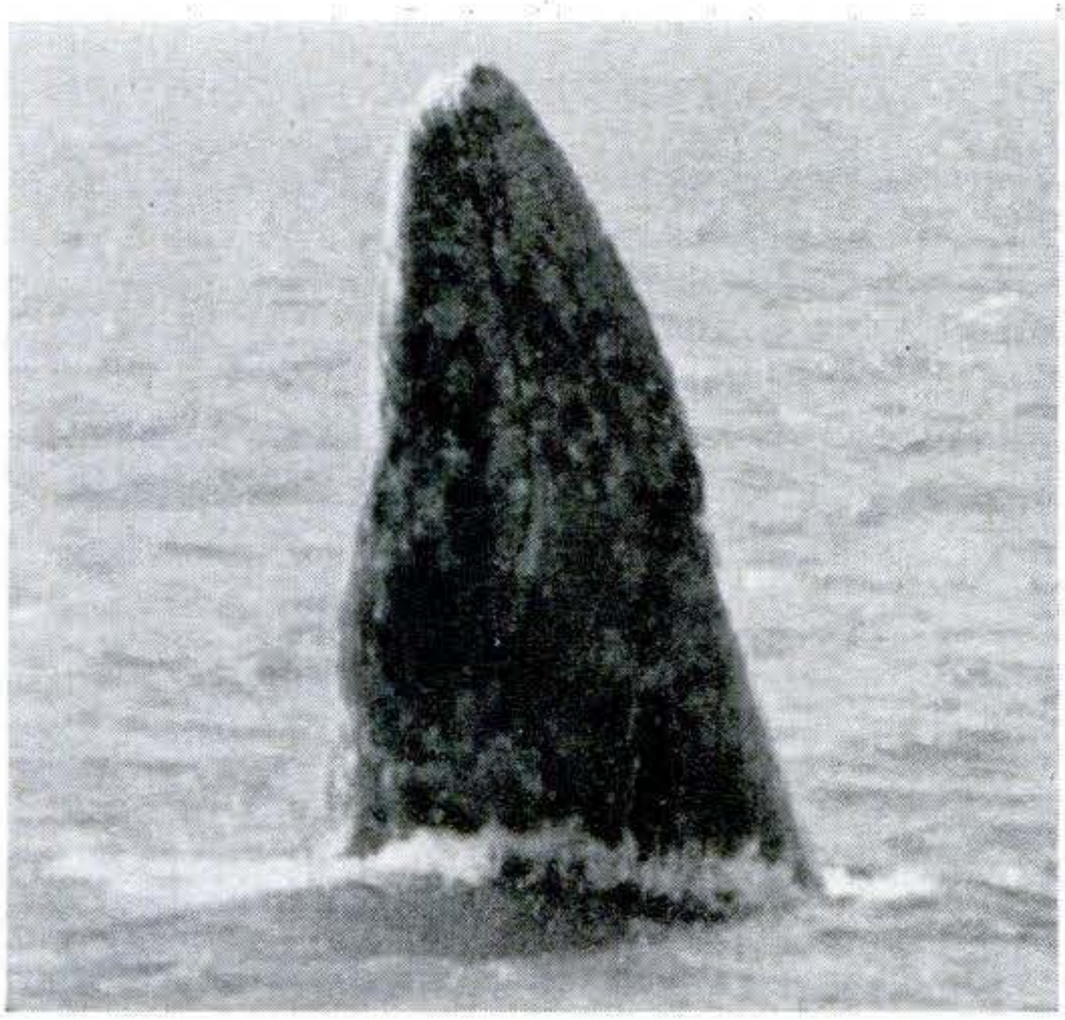
Copyrighted material

This X Ray Uses Hot Atoms

RADIOACTIVE isotopes created in an atomic furnace now make possible lightweight, easy-to-carry X-ray machines.

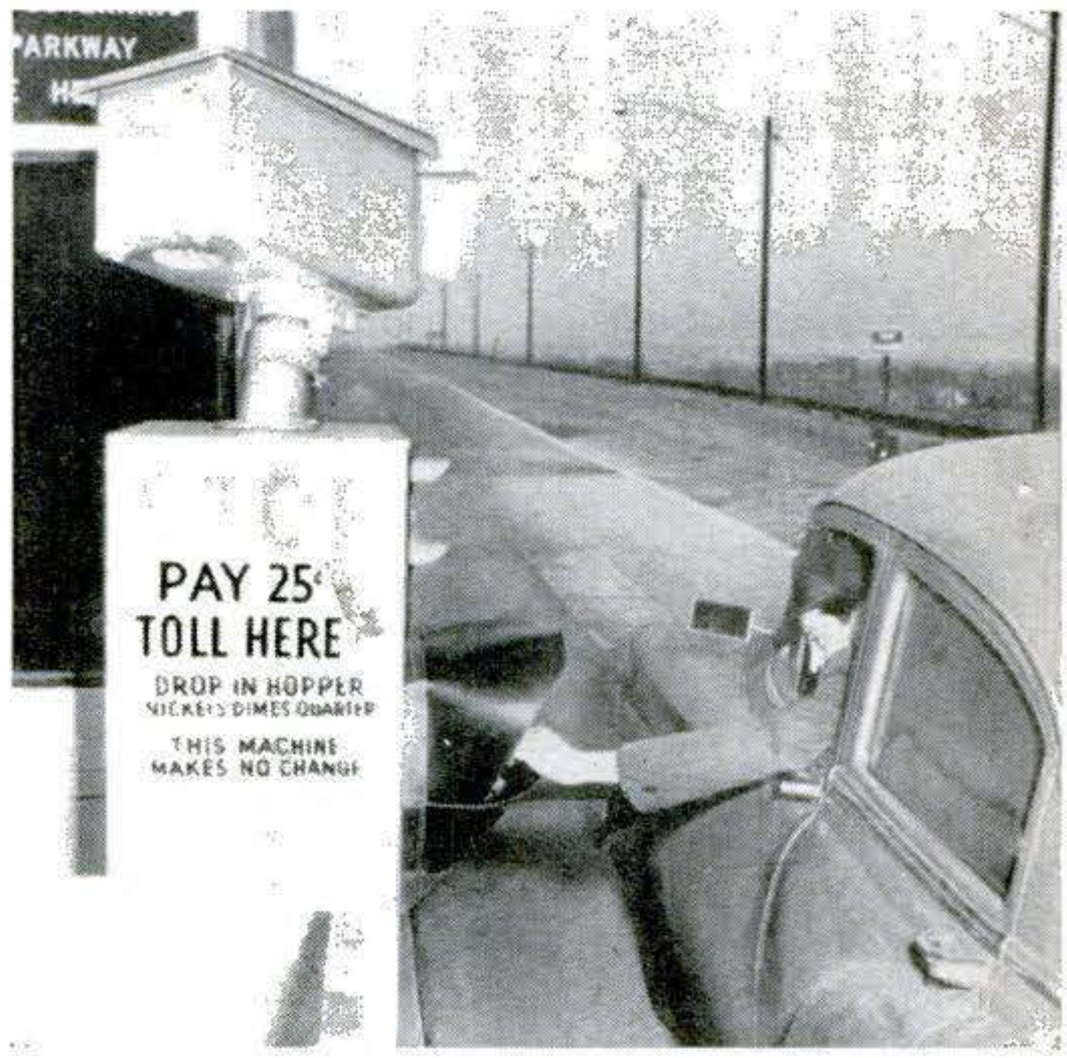
An experimental Army unit (above) uses "self-developing" film that requires no darkroom. After exposure, a pull on a tab releases chemicals to process the picture.

A civilian version (right), called the Iso-X, is made by Litton Industries, 336 N. Foothill Rd., Beverly Hills, Calif. Both machines use radioactive thulium to generate their X rays.



Sea Serpent? Just a Gray Whale

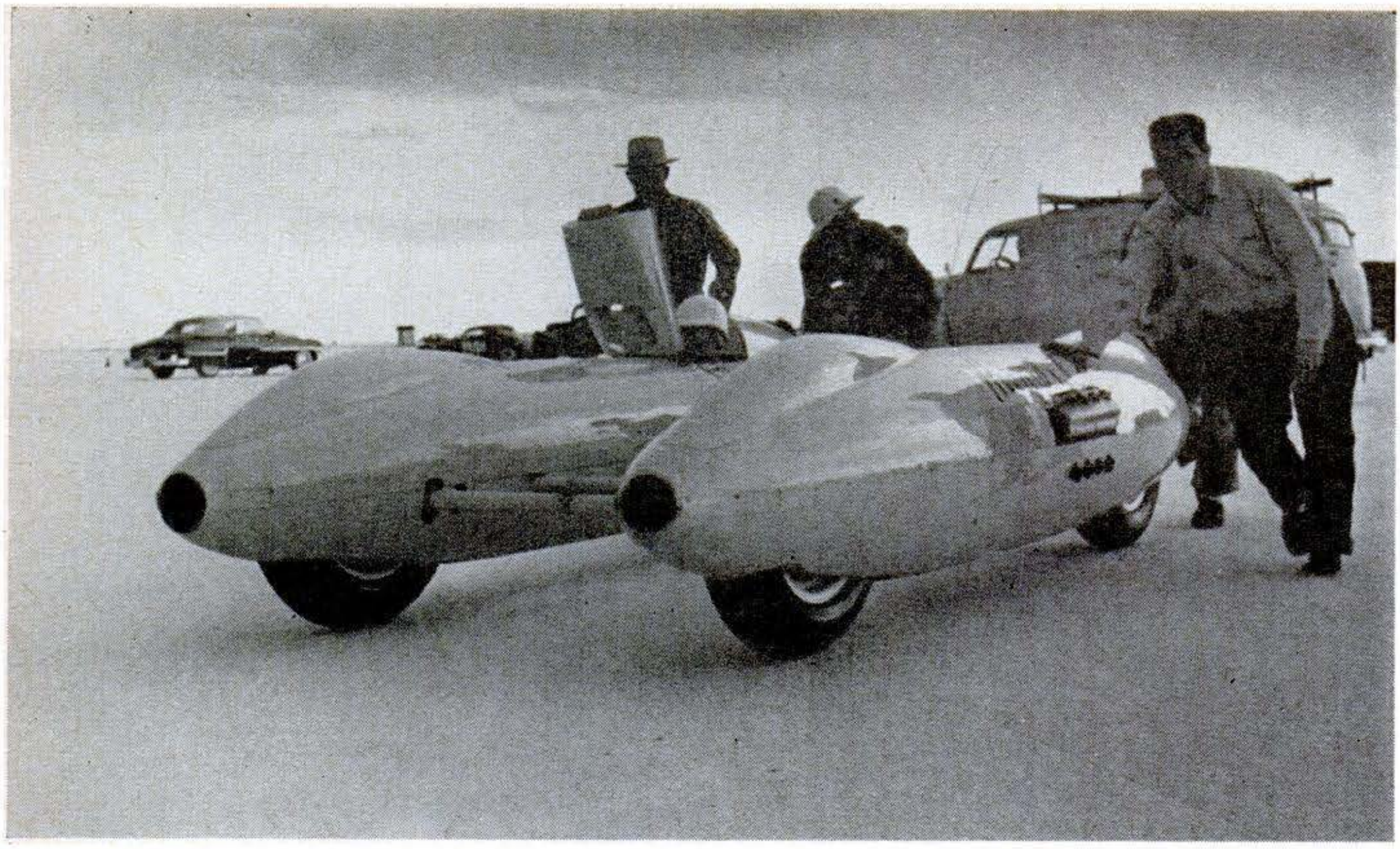
LIKE a weird sea monster, a gray whale bobs his head above water for a suspicious look at the photographer, Raymond M. Gilmore of the Fish and Wildlife Service. He chased the 40-foot animal in an outboard-powered rowboat to get his pictures.



Camera Guards Robot Tollgate

YOU can't short-change the mechanical toll collector just installed at New Jersey's Garden State Parkway. Put any less than 25 cents in the hopper, and a camera in the box atop the sign snaps a photo of your license plate as you drive off.

Copyrighted material

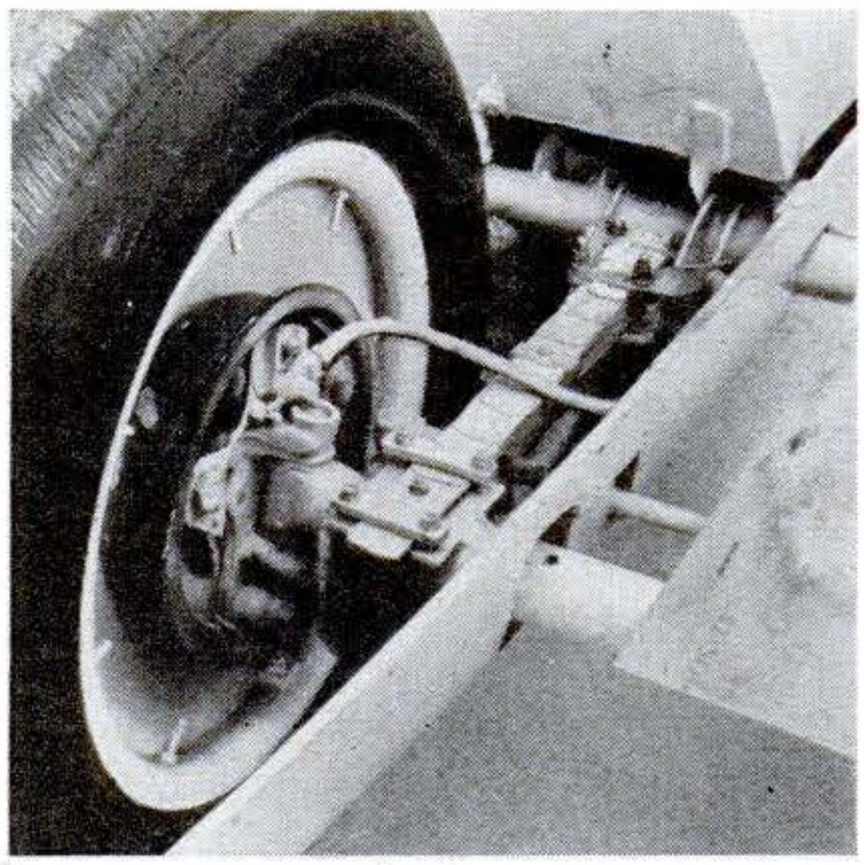


DOUBLE-TANKER is ready for trial run, with driver in his twin hull. Spider gears link engine to rear axle. A 50-pound battery behind the driver helps balance engine weight.

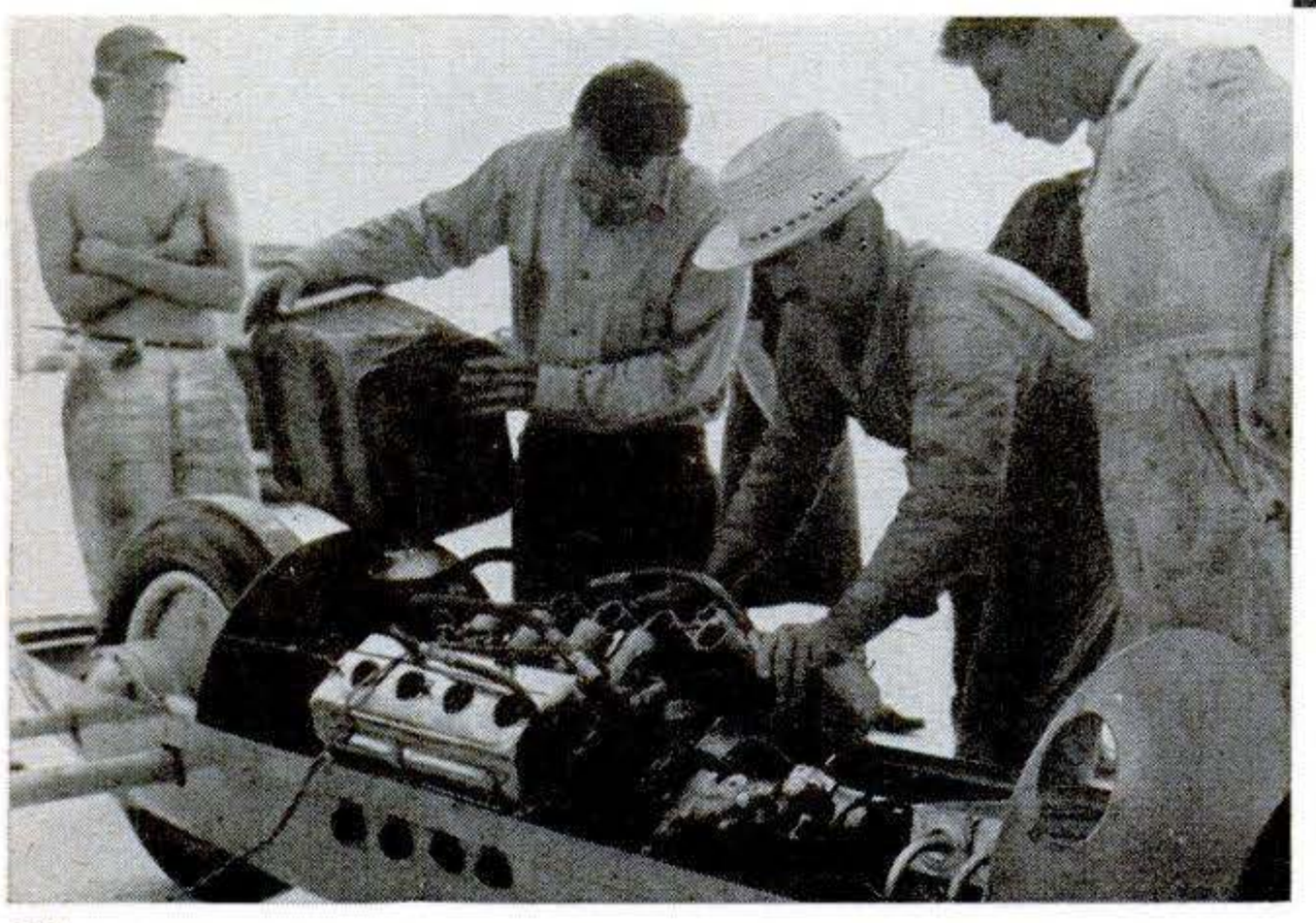
Siamese-Twin Hot Rod Guns for 260

A PAIR of F-84 airplane drop tanks skimmed the surface of a California dry lake not long ago at 150 miles an hour. A man rode in one, a cut-down DeSoto engine in the other. Chrome-moly tubes and two rigid axles encased in more tubing linked the tanks together.

Howard Johansen, a Los Angeles cam maker, built the car to test the speed possibilities of twin bodies, with their reduced wind resistance. The car's 1,500 pounds pushes into the wind a frontal area of only seven square feet, about half that of a conventional hot rod. Johansen figures he'll top 260 on long straightaways.



UP FRONT, leaf springs from a Hudson suspend the body. The hydraulic line leads to a Dodge front-wheel brake. Installed at the rear, which is springless, are spot brakes from an F-80 fighter and the differential housing which Johansen took from a '34 Ford.



OPENED POWER HULL shows fuel tank behind engine, a DeSoto sleeved down to 257-cubic-inch class. Magneto ignition sparks engine which is controlled by driver through a push-pull cable. That's builder Johansen with the hat, checking his engine.

Copyrighted material

Capital is the first U.S. line to go turboprop.

You'll Like Turboprop Flight

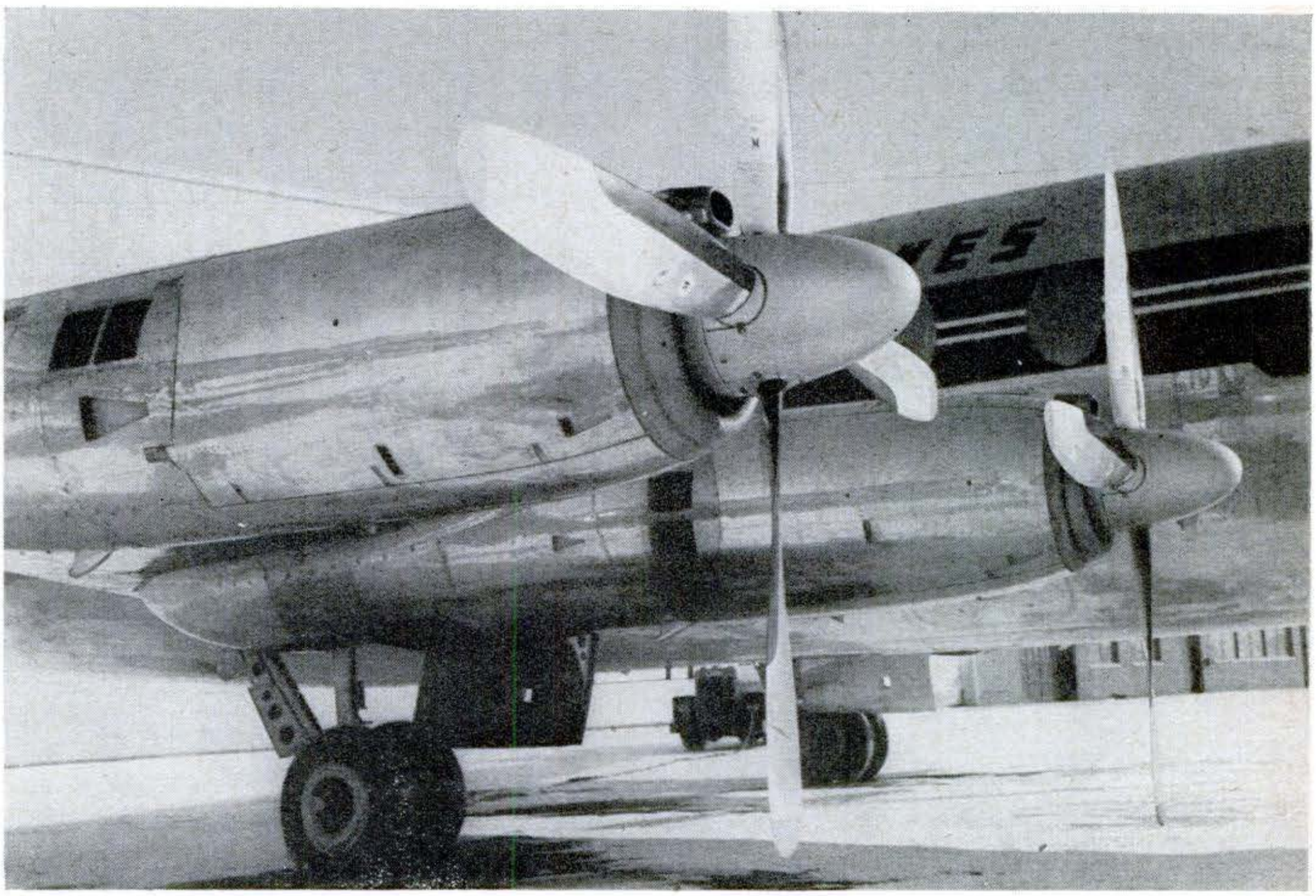
A veteran air traveler takes you with him on a new kind of liner now flying U.S. airways.

By Herbert O. Johansen

ON MY first flight in a Vickers Viscount turboprop, nine beautiful stewardesses vied with each other to keep me—the only passenger—comfortable, well fed and happy as we sped 440 miles an hour, 27,000 feet up.

Beautiful stewardesses in abundance are not a characteristic of the turboprop. They were along because it was a training run, between Winnipeg and Toronto, arranged by Trans-Canada Air Lines before putting the first of 22 turboprop airliners into scheduled service.

My preview flight was made about a month before a Viscount was to whine down to a landing at New York Inter-



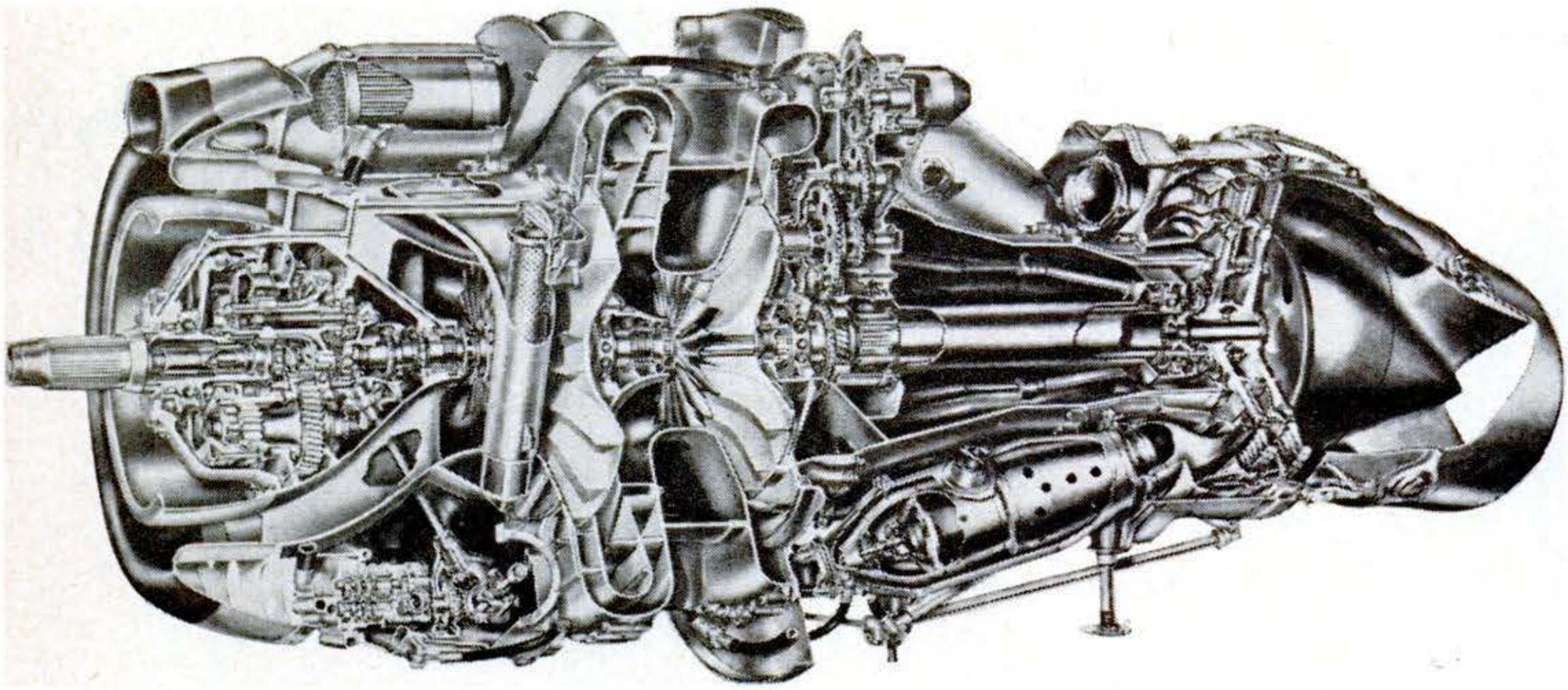
Here's what makes plane go. Vickers Viscount airframe was designed around these engines.

Copyrighted material

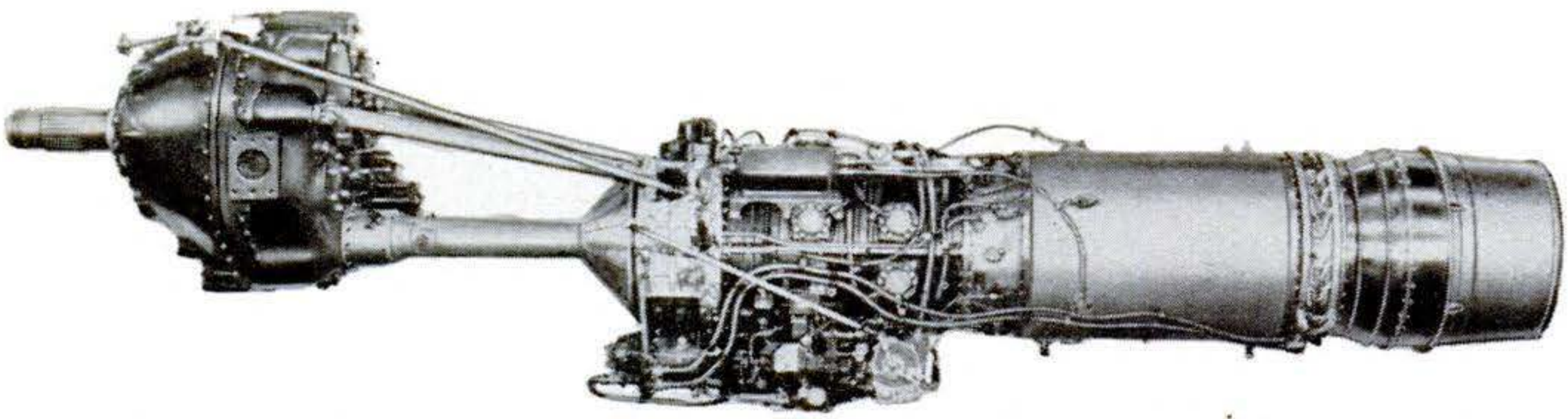
national Airport, introducing turboprop service to the United States. More air travelers in this country will soon become familiar with that characteristic whine as Capital Airlines replaces its entire fleet of piston-engine planes with 60 of the British-made Viscounts.

Although I have flown hundreds of thousands of miles in almost every type of airplane, this flight was a unique experience.

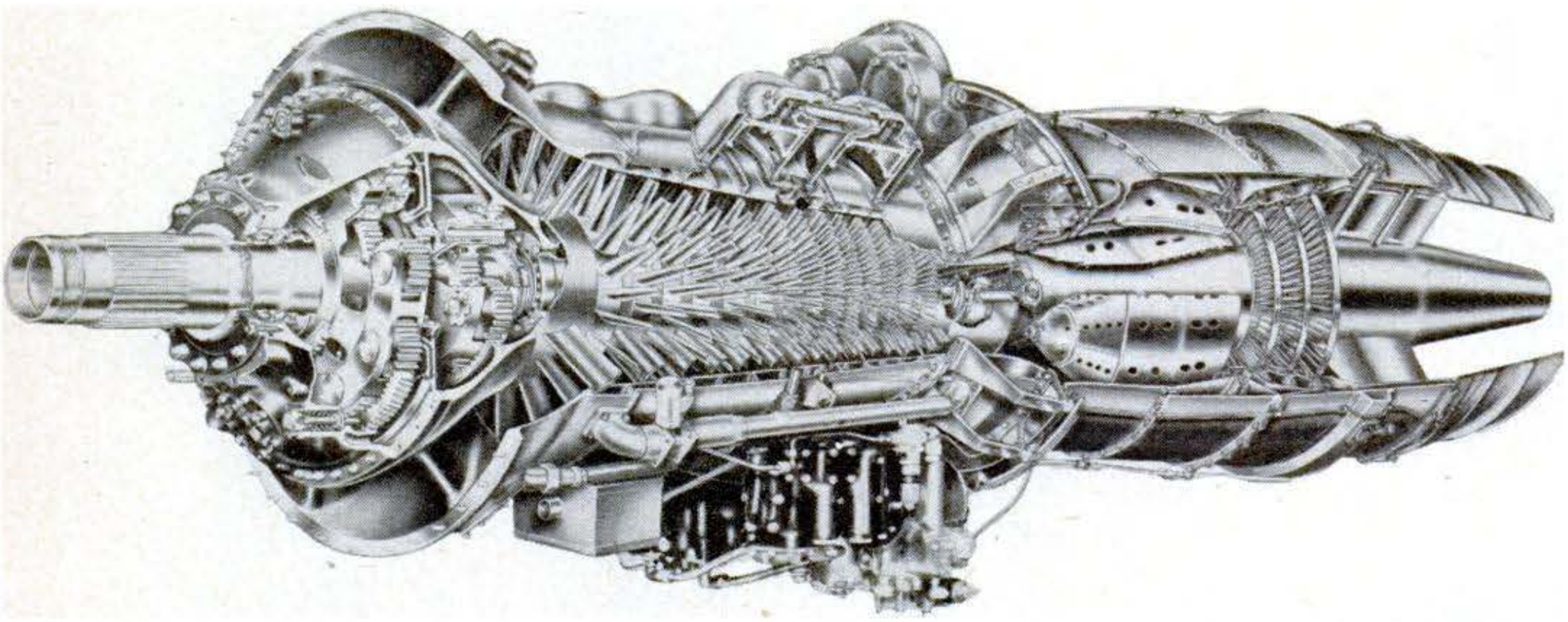
Our pilot climbed to 27,000 feet to get above bumpy weather and to take advantage of a 100-mile-an-hour tail wind.



Four of these British Rolls-Royce Dart gas-turbine engines power the new Vickers Viscounts.



A gas turbine, too, Allison engine above may run tomorrow's U.S.-built turboprop airliners.



Another U.S. contender, Pratt and Whitney PT2, turboprop-powers Navy Super Connies.

Copyrighted material

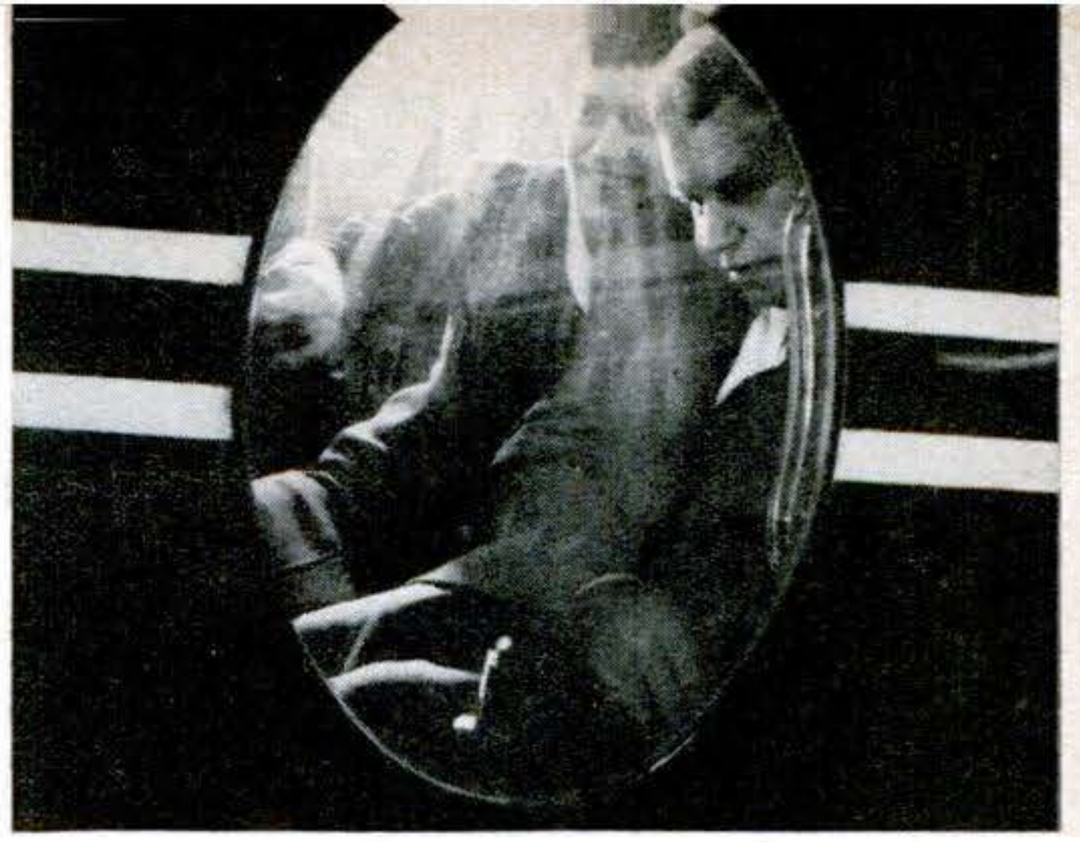
Turboprop power enabled him to climb 1,800 feet a minute—about twice that of a similar piston-engine plane. Thus we were able to get up there quickly enough to make it worth while for the short distance to our next landing.

The Viscount's cabin, pressurized to a comfortable 7,000 feet (no ear buzz and my Zippo cigarette lighter worked perfectly), kept us from noticing the altitude. The four 1,500-horsepower Rolls-Royce Dart gas-turbine engines, with a normal cruising speed of more than 330 miles an hour, combined with the strong tail wind, let us cut almost in half the scheduled piston-flight time between Winnipeg and Fort William-Port Arthur airport.

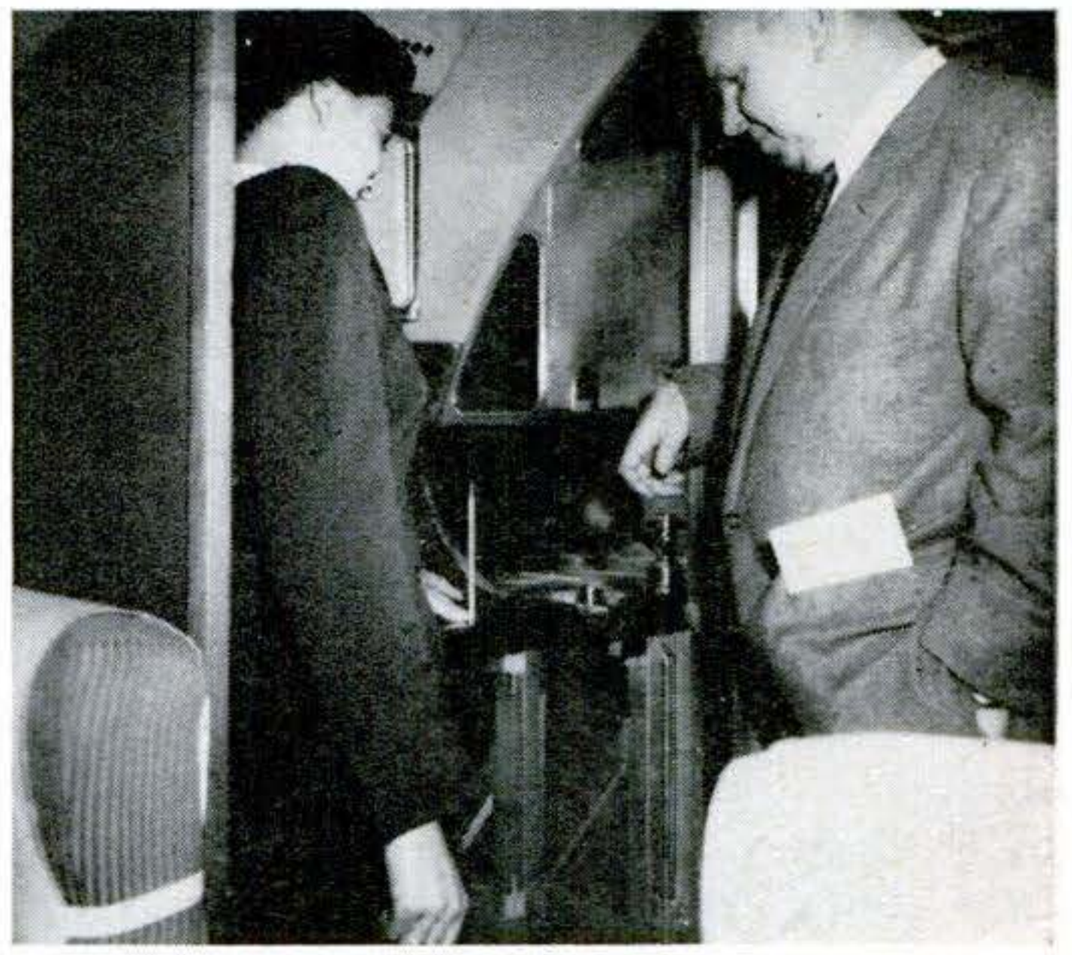
An increase in speed that will, on regular runs, cut half an hour off a two-hour hop is certainly a feather in the Viscount's prop. But what impressed me most about my turboprop flight—let's forget those hostesses now—was the low level of vibration. There was some vibration, of course, but still I did (as advertised) balance a pencil on end. The greatest boon of this lack of the flying shakes, however, was that I was able to sleep, something I have rarely been able to do before on short flights. And there was plenty of room to stretch out for sleep in this 40-seat, two-abreast version. Capital has announced a 48-seat version.

Turboprop flight is the next thing to jet flight. The Viscount's gas-turbine engines are the same type that speed supersonic jets. The main difference, aside from less power, is that the energy is harnessed to propellers as shaft horsepower instead of being blown out through the tailpipe as jet thrust. With only one big moving part, and that rotating, far less vibration and noise is transmitted to the fuselage than with piston-pounding power plants.

"Noiseless," like "vibrationless," has been loosely used in describing turboprop flight. Of course there is noise. In fact, sitting by the window on the port side of the Viscount in flight, I asked a Trans-Canada representative, "Stan, what's all this about no noise? I don't



BIG, OVAL PICTURE WINDOWS make it unnecessary for Viscount's passengers to crane their necks for a view of the scenery below. Light reflections make the glass look fuzzy.



"LOOK, NO VIBRATION," says Trans-Canada stewardess Muriel Ryan. She is balancing a pencil on end for me in the aft galley of the Viscount during our preview flight.

THERMOMETER READ 20 BELOW as we deplaned at Winnipeg. That is why Trans-Canada is using a special cold-weather fuel. Capital Airlines' turboprops will burn ordinary kerosene.

Copyrighted material

seem to notice very much difference."

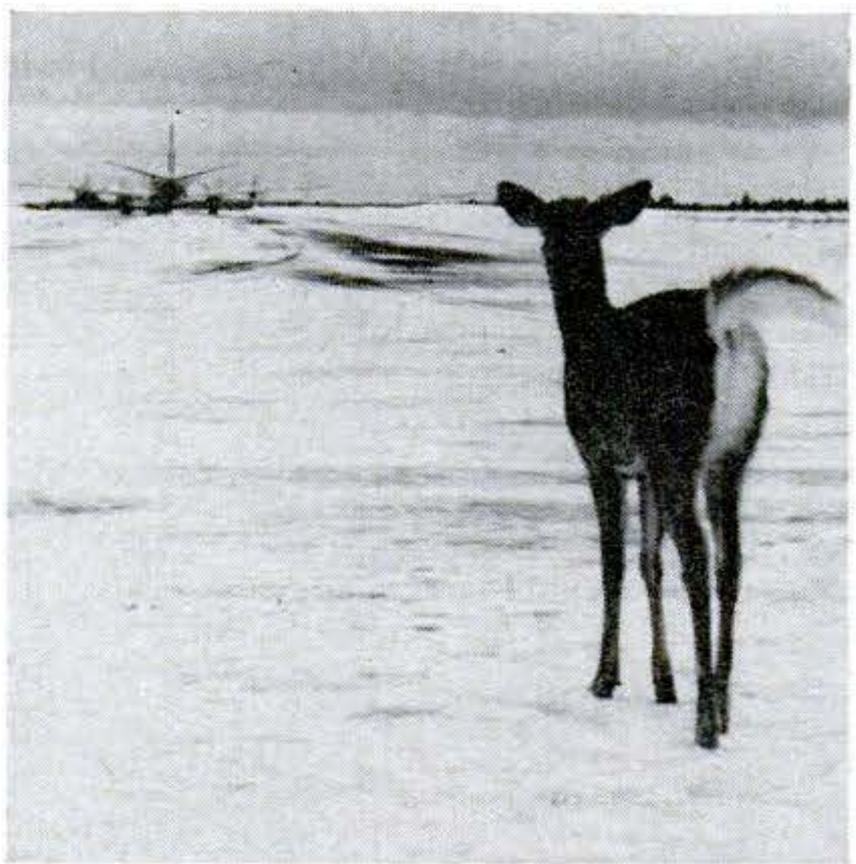
"Well, it's a different kind of noise," he said. "You'll get used to it."

Only then did I become aware that Stan was sitting at the window seat across the aisle from me. I had talked in a normal voice. There had been no cupping of ears, no "Eh, what was that you said?" And when we stepped off the Viscount on our arrival at Winnipeg, I found that I wasn't shouting at the people around me for the next half-hour.

Now that Trans-Canada and Capital have settled the question whether passengers would be able to fly jet or turboprop first in this country, the question takes a new form: "Will we see more turboprops on U.S. airlines before a commercial jet transport comes along?"

The answer is yes.

Faster four-engine planes to replace twin-engine equipment on short-to-medium hauls—for which the turboprop is a natural—are being sought by several airlines. When British European Airways put Viscounts on its continental routes, they hogged the business.



BUCKY, mascot at Sault Ste. Marie, Mich., watches wistfully as a Vickers Viscount takes off during the training flight described by the author.

American Airlines, our biggest, is eager to get a turboprop for short and middle distances, as well as a turbojet for long range. What American wants for the short hops, as a replacement for its two-engine Convairs, is "a four-engine airplane capable of transporting 50-60 passengers, with turboprop engines, at a cruising speed of 350-400 miles an hour." Four manufacturers have submitted proposals. The details have not been announced, but reports are that essentially this is what they have to offer:

- A Convair 340 modified to take four turboprops, which would probably be more powerful versions of the Dart used on the Viscount.
- A Douglas DC-6 with a shorter fuselage—the full length is not needed on short-range service. It would be powered by either American or British turboprop engines.
- A brand-new Lockheed airplane, using four U.S. turboprops.
- A new Vickers Viscount, but with more powerful Rolls-Royce engines not yet in production.

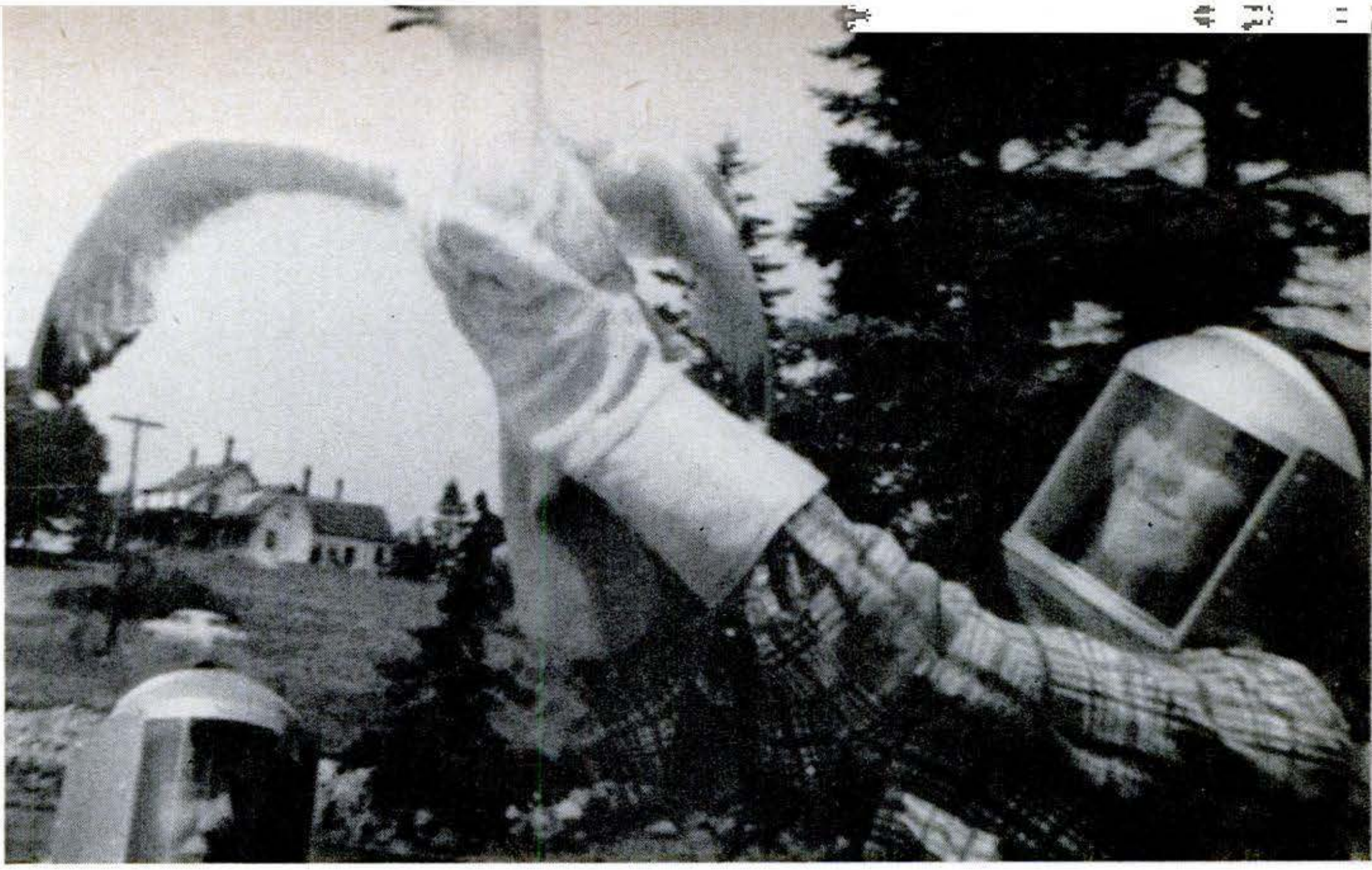
Lockheed, meanwhile, is redesigning a Super Constellation, with a longer fuselage and thinner, longer wings, to take turboprops. This L-1449 would have a speed of over 450 miles an hour, a range of about 5,000 miles. There is also talk of modifying the Douglas DC-7 as a luxury turboprop for the cross-continent and transatlantic trade.

Always it's the engine that sets the limits of an airplane's performance. More powerful, more efficient piston engines have given us faster and bigger planes over the years. But the piston engine has about run its course. As perfected today, the best it can deliver is about one horsepower for one pound of weight. A single engine weighing 4,000 pounds is deemed to be the maximum that can be handled with aerodynamic efficiency. If we want more than 4,000 horsepower, the piston engine becomes too heavy, too big, too complicated.

The turboprop, however, delivers two horsepower or better for a pound of weight. The jet does considerably better even than that—but at very high speeds (better than 500 miles) and very high altitudes (40,000 feet). But the jet is a glutton for fuel and, for commercial use, would pay off only on long-range flights. The turboprop, while slower, nurses its fuel. It can handle short-to-medium-range hauls, while also capable of very

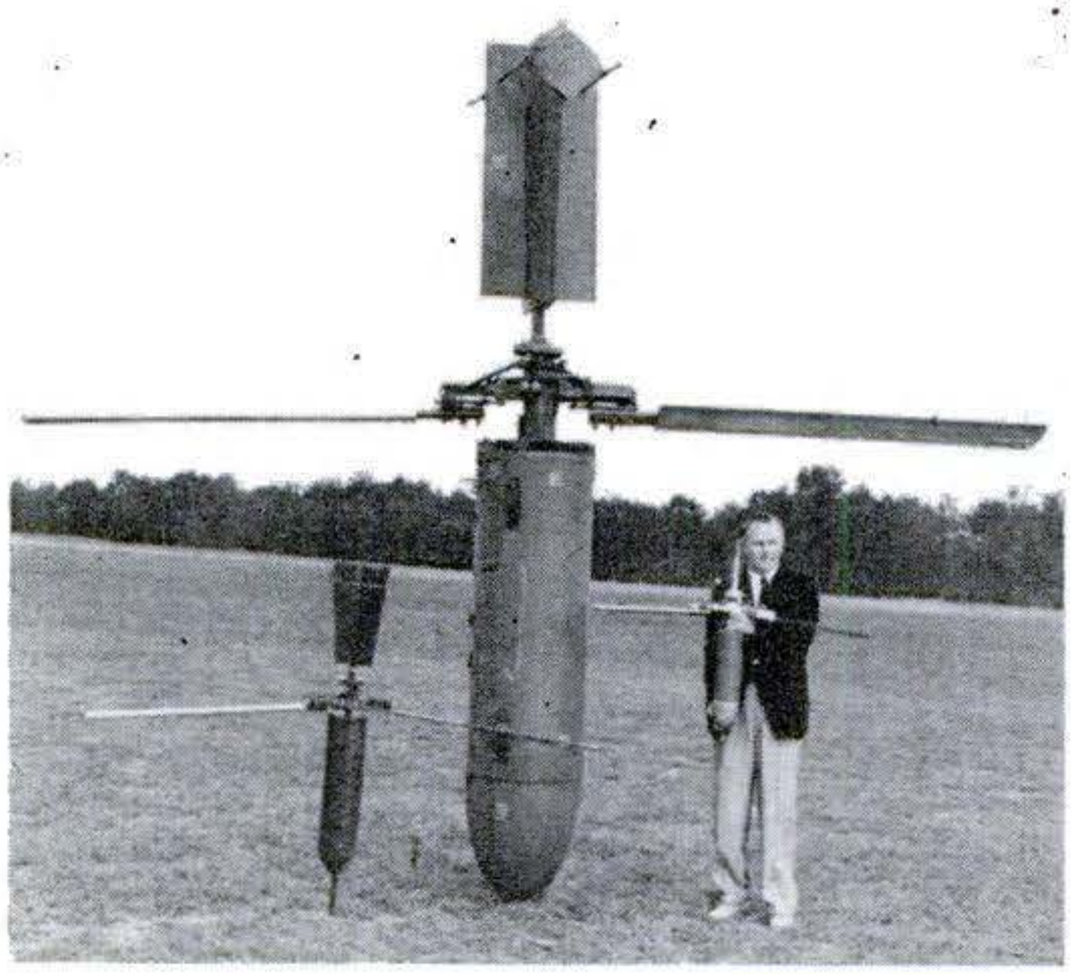
[Continued on page 292]

Copyrighted material



Tape Recordings Chase Gulls to Make Airfields Safer

THIS captured sea gull may save a pilot's life. How? His pals, seeing him in trouble, sound a distress signal to scare the flock away. That alarm call, recorded on tape, can then be played to frighten other gulls away from coastal airfields, where birds sometimes smash into windshields and cause plane accidents.



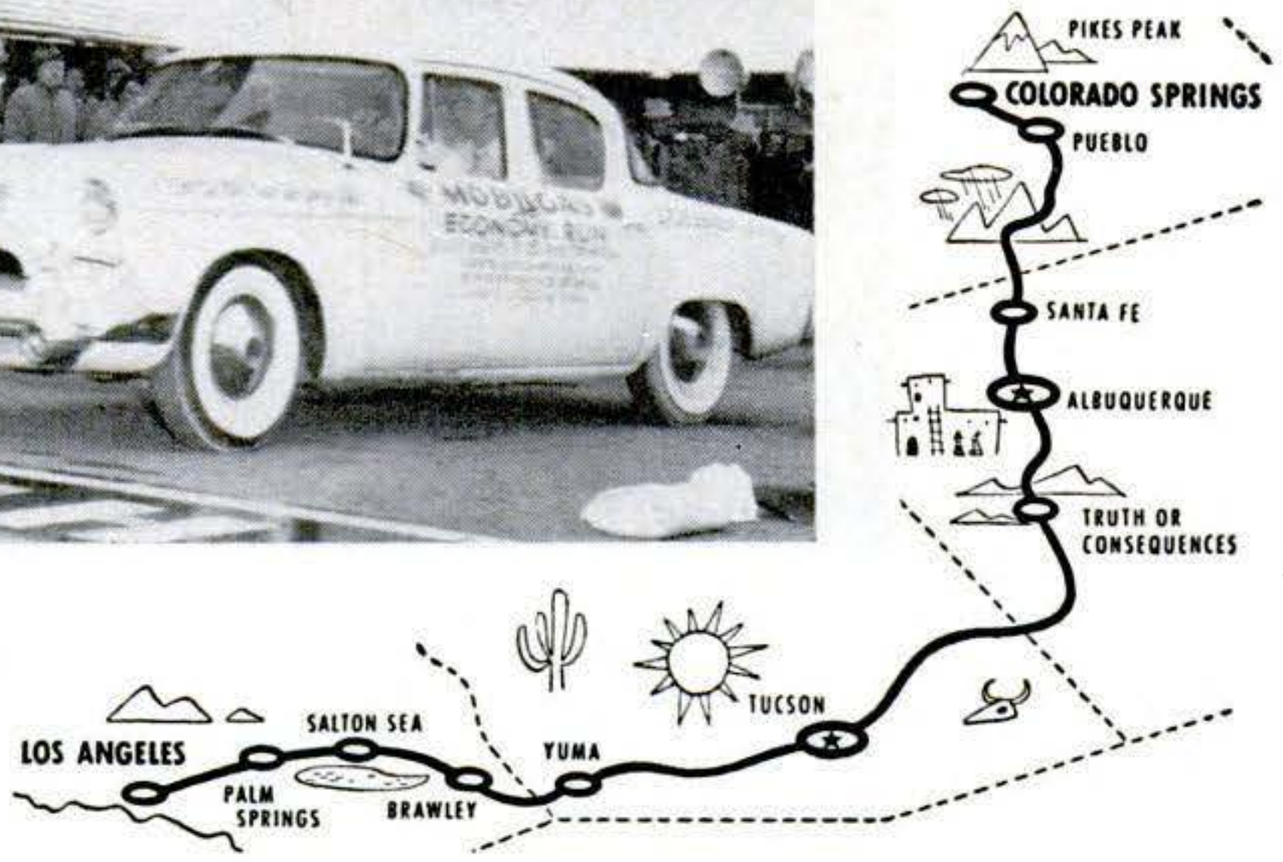
Falling Pinwheels Drop Supplies

A NEW way to drop supplies from airplanes uses helicopterlike blades instead of a parachute. The blades, which unfold and telescope out when the container is released from the plane's bomb rack, are spun by the air stream to float their load gently to earth. Developed by Kaman Aircraft for the Marines, the Rotochute can be dropped from planes flying fast and low.

Spinning Book Tells the Story

THIS child's book can talk and sing. Its plastic cover is a phonograph record of songs and sound effects to supplement the story printed on the pages inside. A hole through the middle of the entire book lets it fit on a phonograph. Originated by Bernard and Darlene Geis, Magic Talking Books are published by John C. Winston Co., 23 Foster Pl., Hempstead, N. Y.

Copyrighted material



CHAMP FUEL MISER completes 1,323-mile run in 32 hours, 50 minutes. The route dipped to 218 feet below sea level at Salton Sea, climbed to 9,382 crossing icy La Veta Pass in Colorado. Stars on the map at right show where the cars stopped overnight.

Studebaker Wins Gas-Saving Race

IN MIDTOWN Los Angeles, before dawn one morning recently, Dick Johnson hopped into a new Studebaker Commander and, with 21 other light-footed drivers in 21 other precisely tuned 1955 cars, took off across the desert for Pikes Peak.

When he pulled up three afternoons later in snow-spattered Colorado Springs, Johnson had driven close to 450 miles a day, at a brisk 40 m.p.h. average, on less than three tanks of gas. Considering its weight, his Studie V-8 led all the rest in the 12th annual Mobilgas Economy Run.

The payoff went not to actual gas mileage, which would have made it a cinch for the small cars, but to ton-miles per gallon. AAA referees figured this by multiplying car weight in tons by miles traveled, then dividing by gallons of gasoline used.

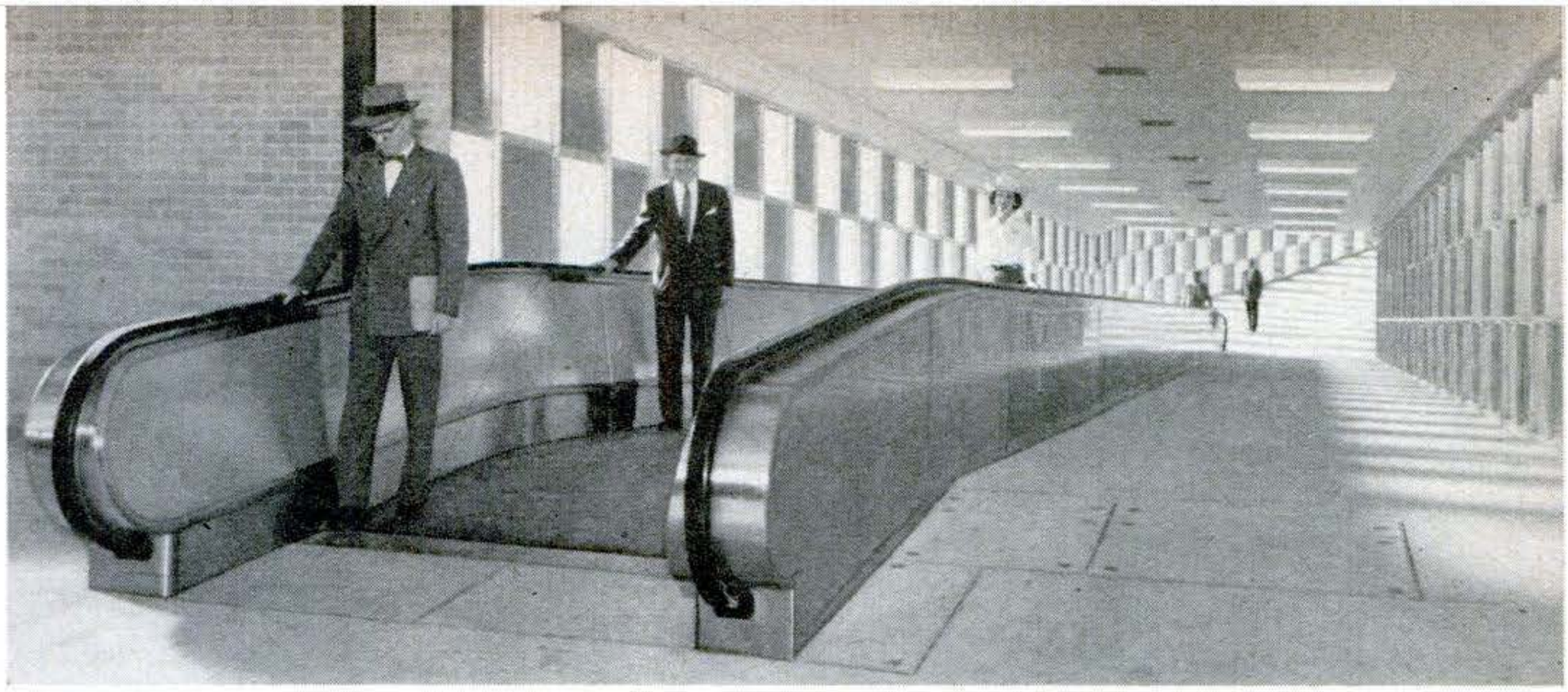
This year, for the first time, all cars in the run had automatic transmissions. The field averaged 2.79 miles a gallon less than the standard-with-overdrive models among last year's entries.

HOW THEY RAN:

MAKE & MODEL	DRIVER	MILES PER GAL.	TON-MI. PER GAL.
LOW-PRICE CLASS			
Rambler Super 6	Les Viland	27.4733	51.2789
Ford Fairlane 6	Marshall Martin	22.8197	48.7201
Chevrolet Bel Air 6	Pete Novotny	21.5631	47.3203
Ford Fairlane V-8	Bill Hooks	20.5979	45.7892
Plymouth Belvedere V-8	Ackton Miller	19.3683	43.7723
Chevrolet Bel Air V-8	Jim Rush	19.6406	42.2862
LOW-MEDIUM PRICE			
Studebaker Commander V-8	Dick Johnson	27.4366	58.6320
Pontiac Chieftain V-8	Archie Bowen	21.6149	51.9297
Mercury Monterey V-8	Art Elliott	21.5866	51.9157
Hudson Wasp 6	Lee Hamer	22.1220	49.9957
Dodge Coronet V-8	William Losher	Disqualified	
UPPER-MEDIUM PRICE			
Nash Ambassador 6	Pierce Venable	25.1854	58.5560
Oldsmobile 88 V-8	Woody Bell	22.5543	56.8707
Studebaker President V-8	Robert L. Donkin	25.2901	55.1957
Dodge Custom Royal V-8	Danny James	22.3287	52.2267
Hudson Hornet 6	Hart Fullerton	20.6544	48.7857
Chrysler Windsor V-8	Mel Alsbury Jr.	18.2294	47.0683
DeSoto Firedome V-8	Verne Holmquist	17.8962	43.8635
HIGH PRICE			
Buick Roadmaster V-8	Al Cottle	19.7827	53.7596
Packard Patrician V-8	Harold Michelson	18.7515	51.6322
Lincoln Capri V-8	Art Rene	18.8780	50.3666
Chrysler New Yorker V-8	Lew Jabro	19.0170	50.1099
Average, All Cars		21.5615	50.4798

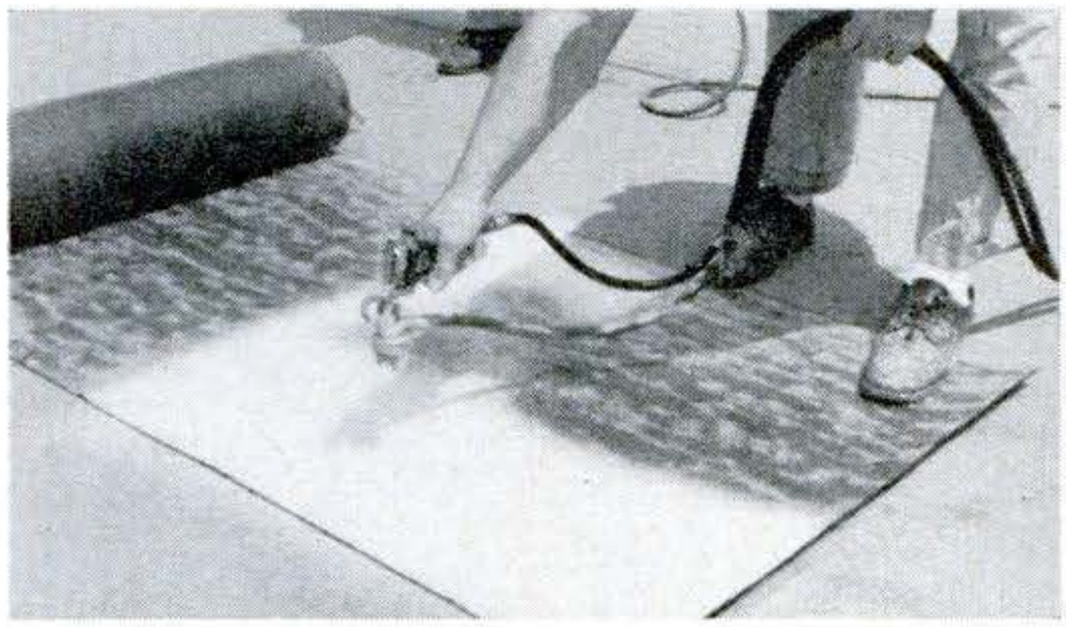
Sweepstakes Winner: Studebaker Commander
Average Speed, All Cars: 40.6543 m.p.h.

Copyrighted material



Rodeo-Bound Texans Get There Faster on Moving Sidewalk

THIS moving sidewalk saves Texans a 114-foot hike at stock shows and rodeos in the Houston Coliseum. Set up on a bridge from the parking lot, the endless rubber belt moves over steel rollers to carry crowds up a 12-foot rise. It reverses its direction when the show is over. Goodrich and Link-Belt engineers teamed up on the project.



PAINTER SPRAYS ROOFING PAPER with white traffic lacquer. Within seconds, before lacquer is dry, another workman sprays the paper with tiny glass beads that sparkle under light.

Paper Strips Guide Cars Around Road Work

TO SHOO traffic off parts of new roads still under construction or to route cars around sections of old road under repair, highway men in California make their own temporary markers. Cut from black roofing paper painted white and coated with beads that reflect light, the strips cost only a few pennies apiece. The paper can be taken up easily and leaves no marks to confuse motorists when the road work is finished.

CUT STRIPS laid down in parallel pairs divert traffic to one lane of new road. An ordinary pocketknife is used to cut four-inch strips across the width of the roll of paper.

ROLLER PRESSES STRIPS down into hot paving. On old roads under repair, strips are stuck down with asphaltic emulsion. A shovel pries them loose when they're no longer needed.

Copyrighted material

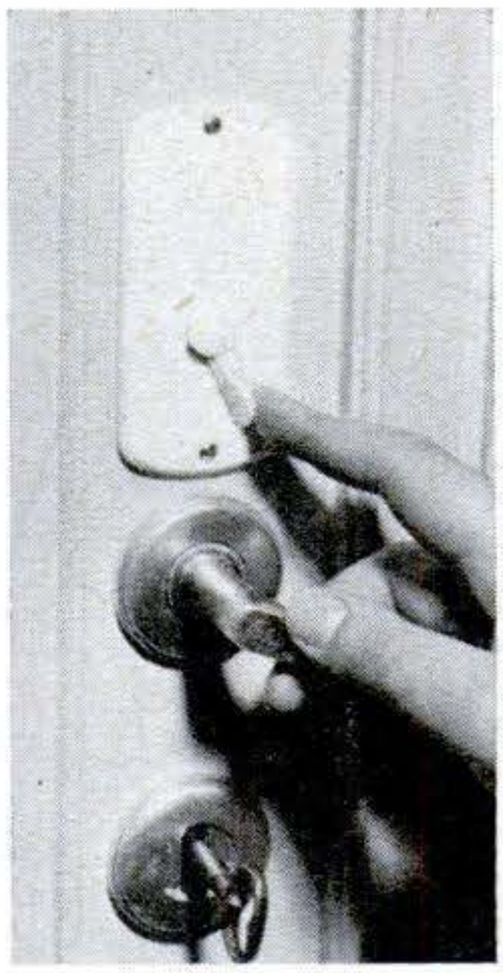
Marsh Digger Opens Everglades

SPORTSMEN may soon be penetrating the mysterious Florida Everglades. A marsh digger (above) is cutting through waist-high vegetation, leaving "water trails" in its wake. Like a flat, steel-hulled motorboat with rotary blades at the "prow," it digs channels wide and deep enough to be navigated by canoes and small motorboats.

Shaker Keeps the Salt Pouring

SALT can't clog in this shaker. The hinged lid is fitted with tiny spikes that fit into the pouring holes to keep them clear of caked salt and to seal them against dampness when the shaker is not in use. Finger pressure pops up the spring-held lid. Invented by a German who got tired of pounding at clogged salt, the shaker is made by Steinberger & Vorsanger A.G., Am Schlachthof 1, Wiesbaden.

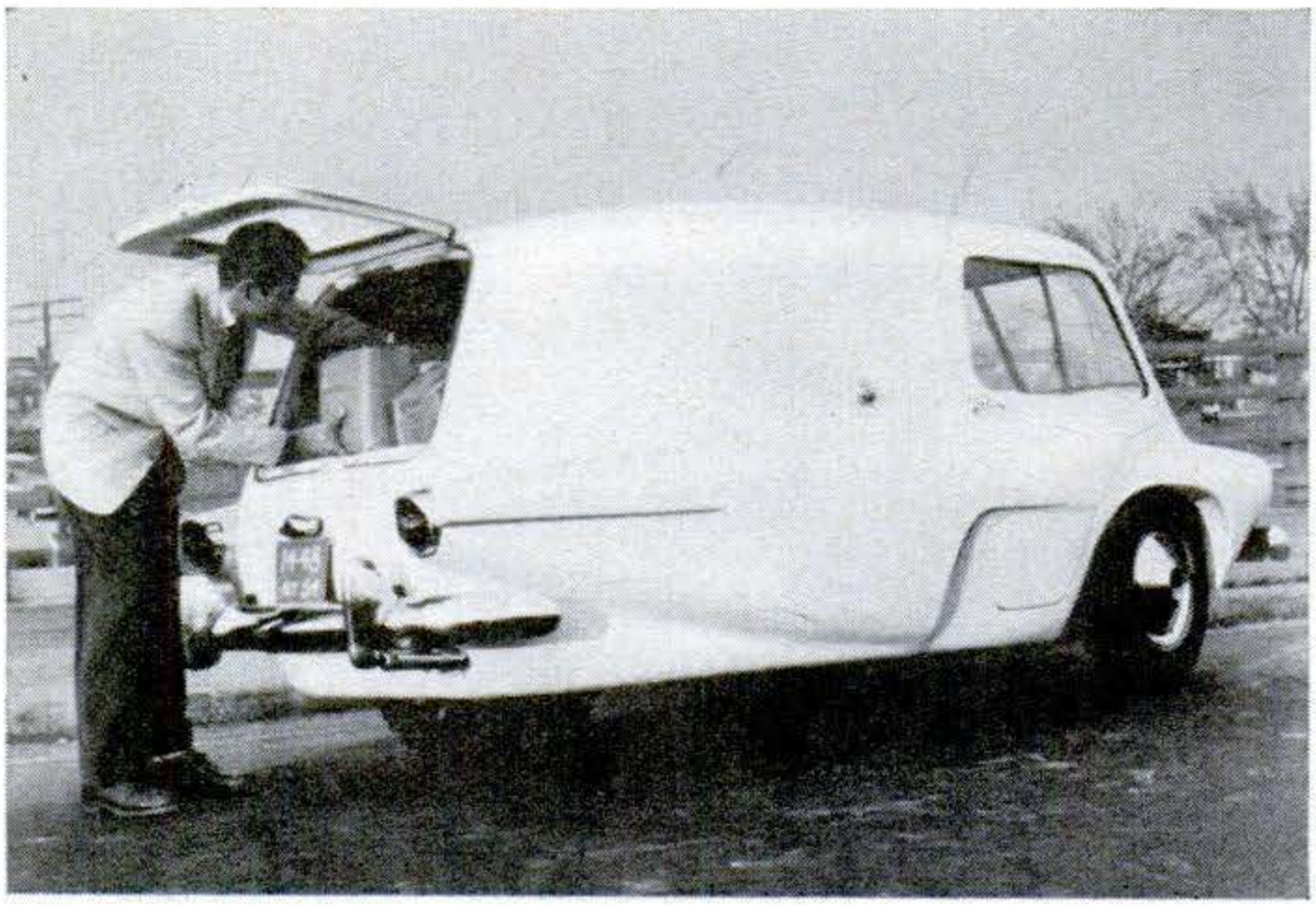
Outside Switch Lights Room



THERE'S no fumbling for the light switch in a dark room with a new German system. The switch box is placed outside the door, just above the lock, so that you can snap on the light before turning the knob. The switch is connected to the house circuit through a special hinge. Shown here on the door of a hotel room, the inventor expects the switch to be used in private homes, too. Dr. Deisting & Co., G.M.B.H., Kierspe, Westphalia, Germany, makes it.

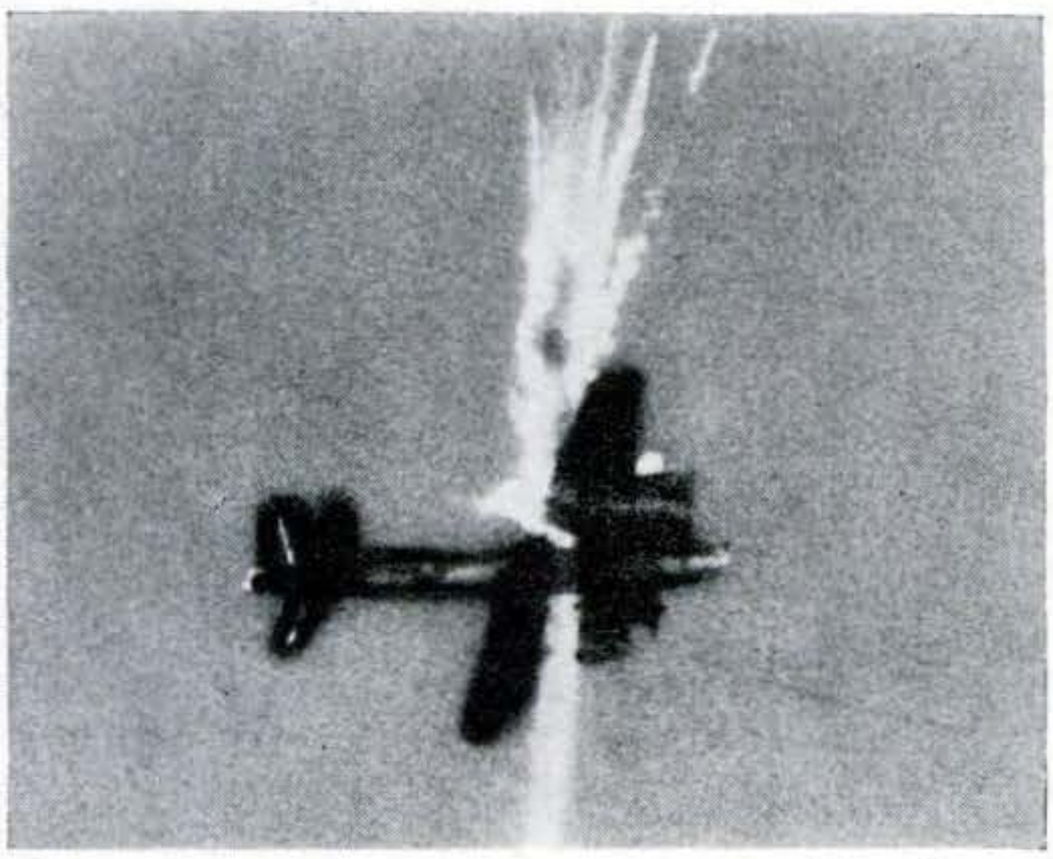
Plastic Body Serves as a Chassis, Too

THIS plastic three-wheeler has no chassis—it's made in two pieces with the reinforcing structure molded into the underhalf. Just under nine feet long and only 53 inches high, the experimental Stationette seats two and has 110 cubic feet of cargo space. A 24-horsepower rear engine gives it a speed of 45 m.p.h. Bassons Industries, Bronx 60, NYC, molded the body.



Copyrighted material

Falcon Can't Miss Its Prey



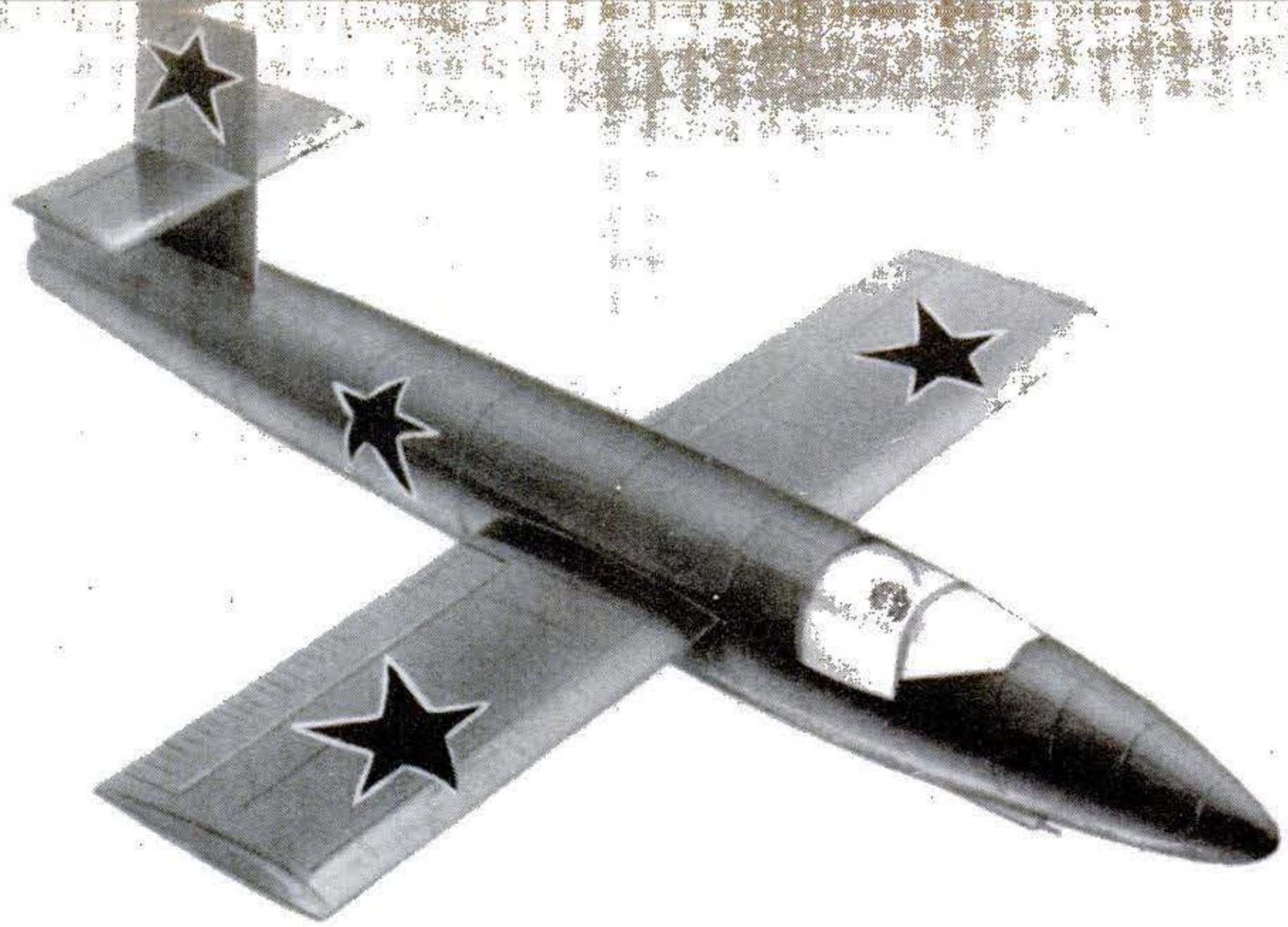
DEATH TO BOMBERS, new Falcon tails a drone B-17 (right) and pounces for the kill (above).

ENEMY bombers will be sitting ducks for the deadly Falcon. Its electronic brain guides it to the target, relentlessly following any evasive maneuver. Soon to be arming many defense interceptors, the guided missile was developed by Hughes Aircraft.

The Air Force also revealed an intercontinental destroyer: Atlas, which could strike Russia from the U.S., speeding thousands of miles an hour on a power plant developing millions of horsepower.

SMALL MISSILE fits under fighter wing, fires itself automatically when target gets in radar range.

Copyrighted material



Strange Wing Shapes Mark Fast and Effective Jets

FACTS and pictures filtering through the Iron Curtain indicate that the Russians are trying strange new airplanes unlike any seen in the West. What two of the strangest may look like is shown in these sketches. According to the U.S. Air Force Association's

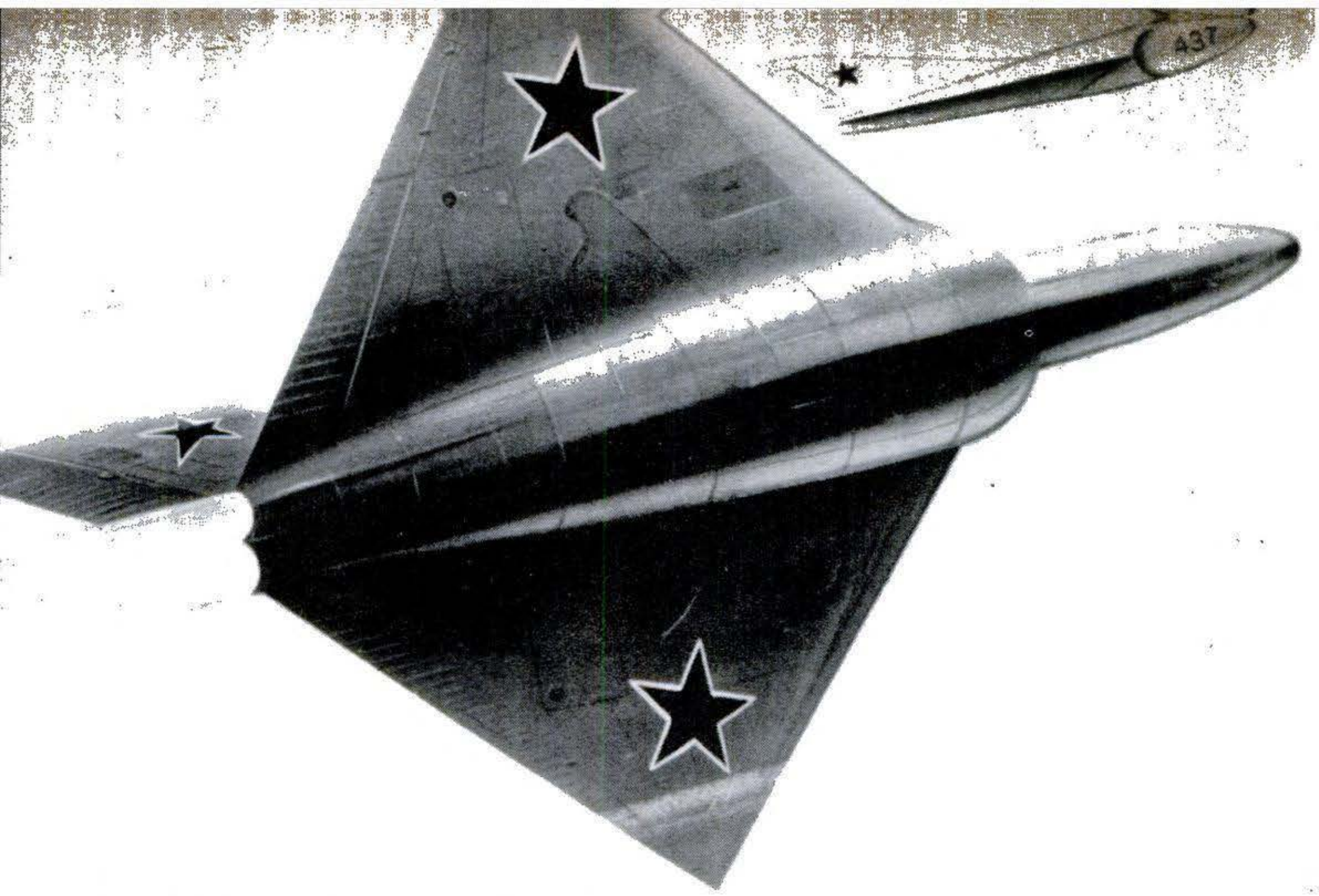
Bottles to Map Ocean Currents

WATCH for bobbing bottles at the shore this summer. About 12,000 hydrographic bottles are being set adrift off the Mexico-California coast. Return of the post cards in the Duraglas containers will help the Scripps Institution map ocean currents.

Model Previews Atom Tank

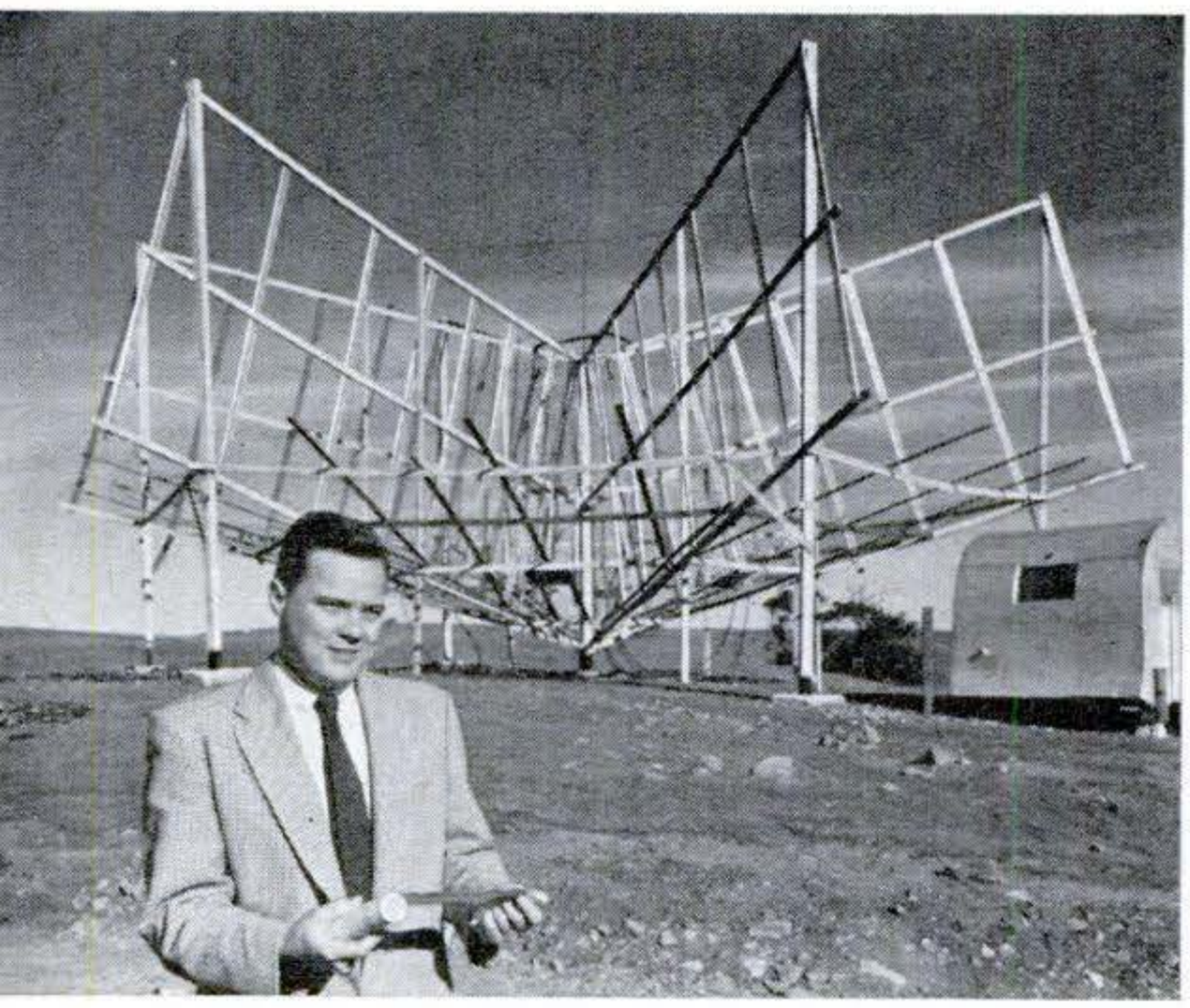
HERE is what an atomic-powered tank might look like. The U.S. Army has built its present conceptions into this wood model. Plans call for a 155-mm. cannon as chief weapon if and when a full-size baby rolls out of the Detroit Arsenal.

Copyrighted material



Reported Among Russian Air Force's New Fighters

unofficial publication, *Air Force*, the square-winged jet (left above) is a Yak-21 that can cruise at low speed to save fuel. The double delta, or flying rhomboid (above), is said to be able to stand on its tail after take-off for a 70-degree climb.



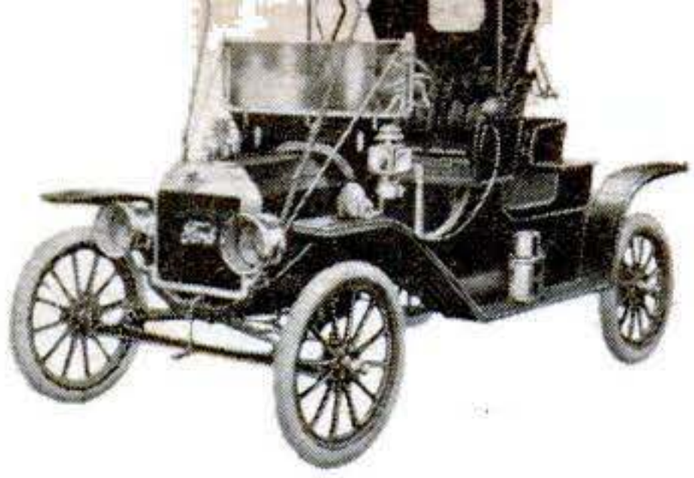
Radar Detects Meteor Dust

THIS odd radar antenna, nicknamed the "Spider," sits on a California hilltop and beams signals in six directions at invisible meteor dust. Stanford University scientists are charting the dust stream to study its effect on radio communication.

Army Gets "Machine-Gun" Hypo

FORMIDABLE as it looks, this "gun" hurts less than a hypodermic needle. Instead of piercing a vein, it shoots vaccine right through the skin. With it, Army doctors can give shots to 1,000 men at a time without stopping to refill it.

Copyrighted material



Try one of these wicked, gone gocarts. They're bound to put youth in your heart and a burn on your bald spot.

How to Buy That New Convertible

CHOOSING a convertible is a hateful job. It's like trying to make a choice between Marilyn Monroe and Gina Lollobrigida.

And it's complicated, often, by the necessity of justifying the purchase of *any* kind of a convertible to a wife who complains that she can't keep a set in her hair with the top down.

Backed into a corner, the average man is likely to resort to an iron defense like, "Humphrey Bogart owns one." Or, "This idea is bigger than either of us."

Well, why *does* he want a convertible?

They're expensive. They're noisy. They're drafty. Their trade-in value may be low. The top is always up when the weather turns salubrious. The top is always down when it starts to rain.

And practically everybody, at one time or another, dreams of owning one.

Including, probably, you.

The appeal of the convertible is insidious, and the wardrobes that the stylists have given the 1955 crop are no help to the sales resistance of the man standing clammy-handed, rooted to the salesroom floor and staring transfixed at the job in fire-engine red with seats to match.

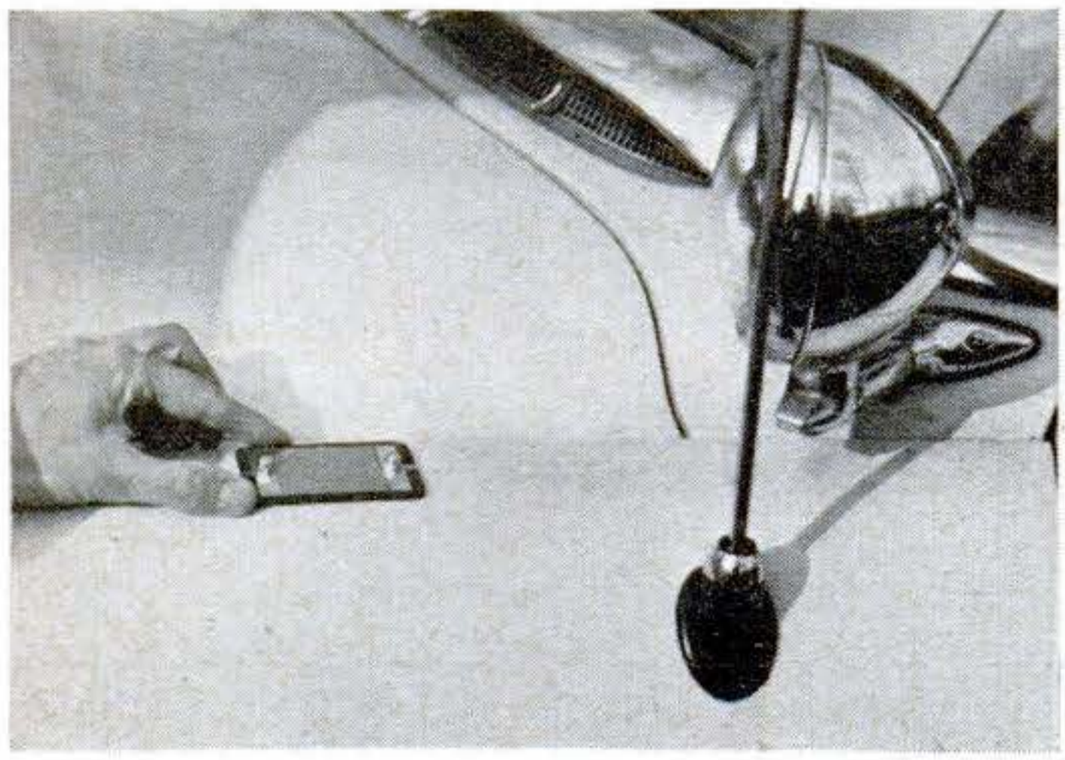
This year the exterior colors are straight from the gaudiest bands of the spectrum. Inside, the decorators take it from there.

Here are the color combinations offered by a single convertible maker:

Shoreline Beige and Gypsy Red
India Ivory and Coral
Glacier Blue and Skyline Blue
India Ivory and Regal Turquoise
Neptune Green and Sea Mist Green
Shoreline Beige and Autumn Bronze
India Ivory and Harvest Gold

If a man wins the initial bout with his

Fender-mounted grid, to close top automatically if it rains, is available on some cars

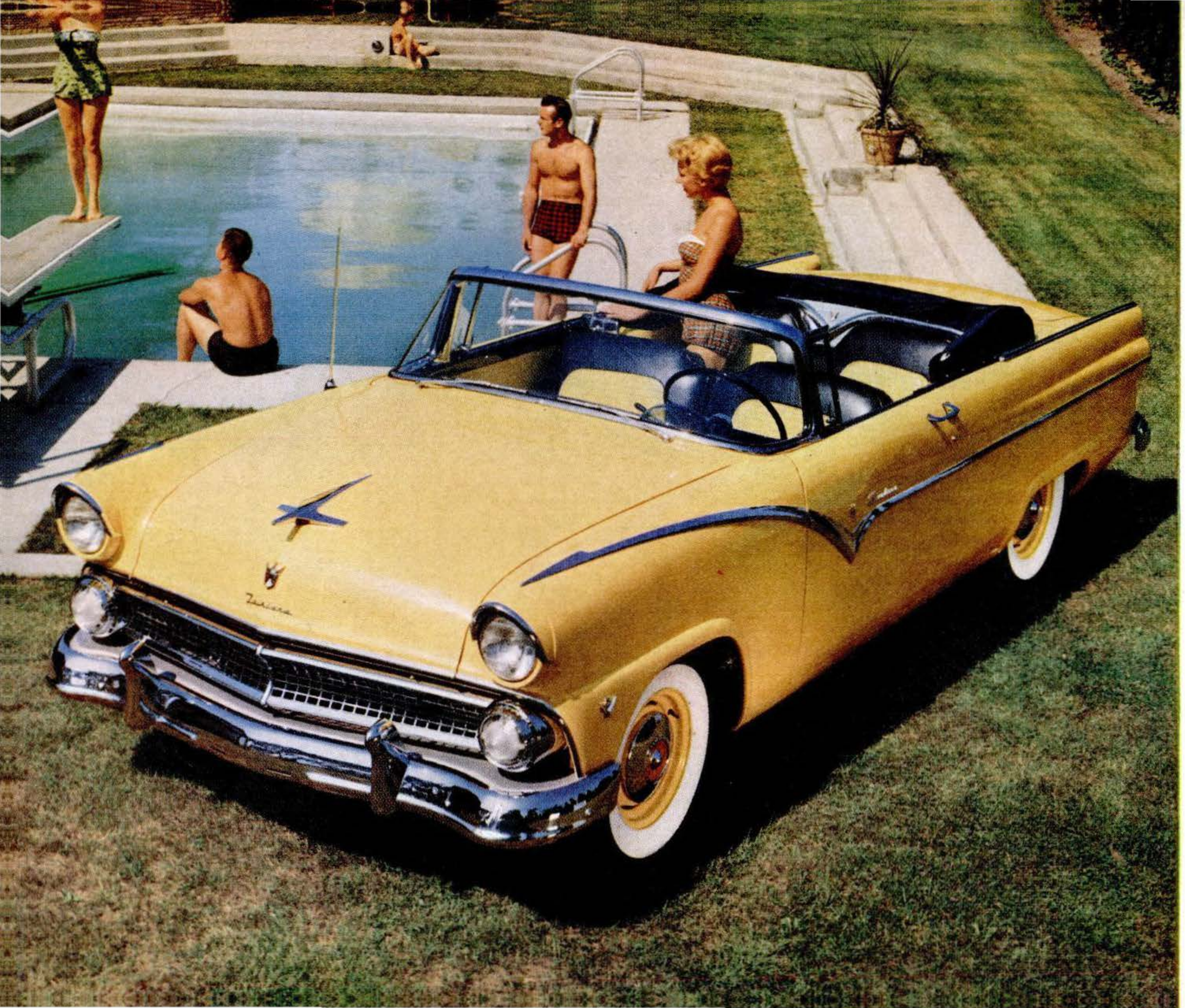


Fold out to see fanciest convertibles

Copyrighted material

Packard *convertible, at 275 horsepower, is one of four super-dreamboats turned out by Detroit. Like the Cadillac, it is priced to include almost all the extras that Lincoln and Chrysler list separately*

Copyrighted material



in red (above) is the perfect example of the convertible's appeal to boys of all ages—from 16 to 60

Ford

glamor—the moonlight and honeysuckle touch by a swimming pool—is strictly intentional

What Those Extras Cost

	BUICK SPECIAL	CADILLAC ELDORADO	CHEVROLET V-8	CHRYSLER NEW YORKER DE LUXE	FORD V-8A	LINCOLN	PACKARD CARIBBEAN	PLYMOUTH BELVEDERE
Base price of car	$2555.	$6286.	$2305.	$3585.	$2327.	$3727.C	$5892.B	$2326.
Air conditioning	—	—	—	—	435.	—	—	—
Automatic transmission	192.50	S	178.35	S	165.	S	S	178.30
Automatic headlight dimmers	—	48.20	44.25	—	—	E	—	—
Back-up lights	F	S	5.85	S	7.85	S	S	8.10
Curb buffers	—	D	—	—	—	24.	D	—
Custom steering wheel	15.10	D	—	G	18.95	—	—	6.50
Door guards	3.95	—	6.90	—	2.95	2.75	D	—
Electric clock	H	S	S	S	13.60	S	S	17.25
Electric windshield wipers	—	S	10.50	S	—	S	S	5.40
Engine power package	—	S	59.20	—	35.	—	—	31.60
Exhaust-pipe deflector	1.95	D	D	G	2.95	S	D	—
Fender skirts	—	S	—	—	17.	S	30.50	—
Fog lamps	—	S	—	D	15.50D	34.50	D	—
Glove-box light	S	S	S	S	1.75	S	S	S
Hand-brake flasher	F	S	4.25	S	3.95	S	D	—
Heater	81.70	S	72.80	76.20	66.44	112.50	S	48.50
Heavy-duty generator, voltage regulator	—	S	—	29.75	20.70	—	S	12.40
License-plate frame	H	S	3.25	S	—	5.	D	—
Luggage-compartment light	H	S	1.95	S	1.25	S	D	S
Oil-bath cleaner	S	—	8.80	S	S	S	S	S
Oil filter	S	S	11.85	S	8.51	S	S	S
Outside rear-view mirror	S	S	6.95	G	3.95D	D	D	4.05
Outside-mounted spare wheel	—	D	123.	—	134.50D	D	S	—
Power brakes	38.70	S	37.70	S	33.50D	40.	S	37.70
Power seat	69.90K	S	I	65.J	60.	65.	S	45.20
Power steering	107.50	S	91.50	105.	85.	120.	S	96.90
Power windows	96.80K	S	I	95.	95.	100.	S	102.30
Radio	92.50	—	62.	92.80	92.50	121.60L	S	89.70
Radio, signal-seeking	122.60	S	105.	123.80	—	—	—	—
Rain-triggered top	—	D	34.	—	35.D	—	—	—
Tinted glass	32.30	45.55	32.30	30.	21.43M	27.50	32.30	30.20
Turn indicators	S	S	S	S	14.16	S	S	16.20
Two-tone body	23.70	—	28.85	S	25.	—	S	S
Wheel covers	H	—	S	S	13.60	S	S	14.
Whitewall tires	28.60	S	26.90	33.10	28.67	35.20	S	26.65
Windshield washer	F	S	7.50D	G	8.89	10.50	S	10.80
Wire wheels	317.20	S N	—	215.	39.95	—	460.50	53.90
TOTALS	$3687.40	$6379.75	$3351.95	$4380.85	$3834.55	$4425.55	$6415.30	$3161.65

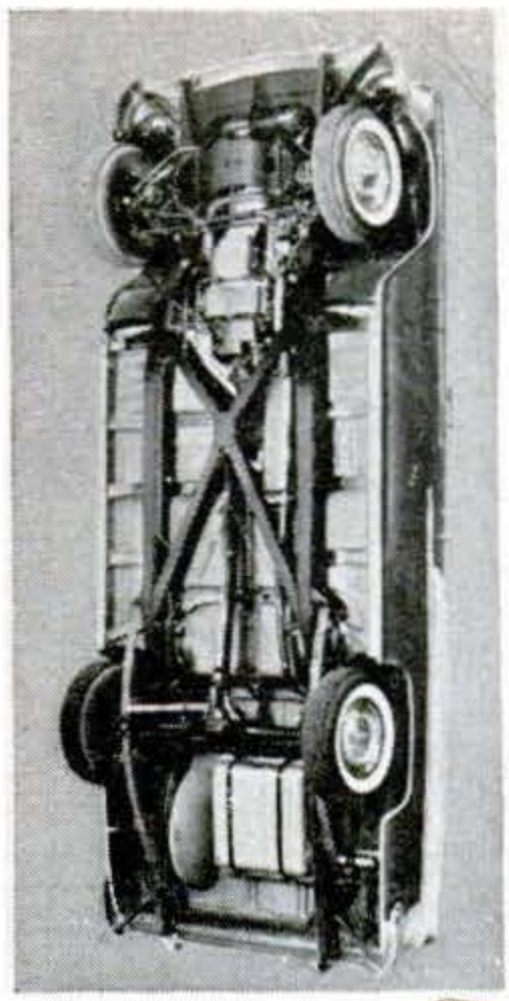
Unless otherwise noted, price quoted is factory-suggested list, including Federal tax but not including freight, sales taxes, licensing or dealer charges. Price covers car without accessories or extras except where they are standard equipment. With Ford and Chevrolet, accessory prices quoted do not include installation charges. Dash (—) means not available. A. Federal tax not included in accessory prices; B. Torsion-bar suspension is standard equipment on this model; C. Does not include Federal tax; D. Installed by dealer; E. Available presently; F. Sold as part of four-item accessory group (includes glareproof mirror) costing $32.30; G. Sold as part of four-item accessory group costing $23; H. Sold as part of four-item accessory group costing $37.50; I. Price, $145.30, includes power seat and power windows; J. Two-way seat, $42; K. Four-way power-window price includes 2-way power seat; L. With rear-seat speaker, vacuum antenna; M. Windshield only; N. Saber-spoke wheels; S. Standard equipment

wife, he can dally for weeks among the wares of the convertible manufacturers. There are all kinds of things he—or you—can investigate.

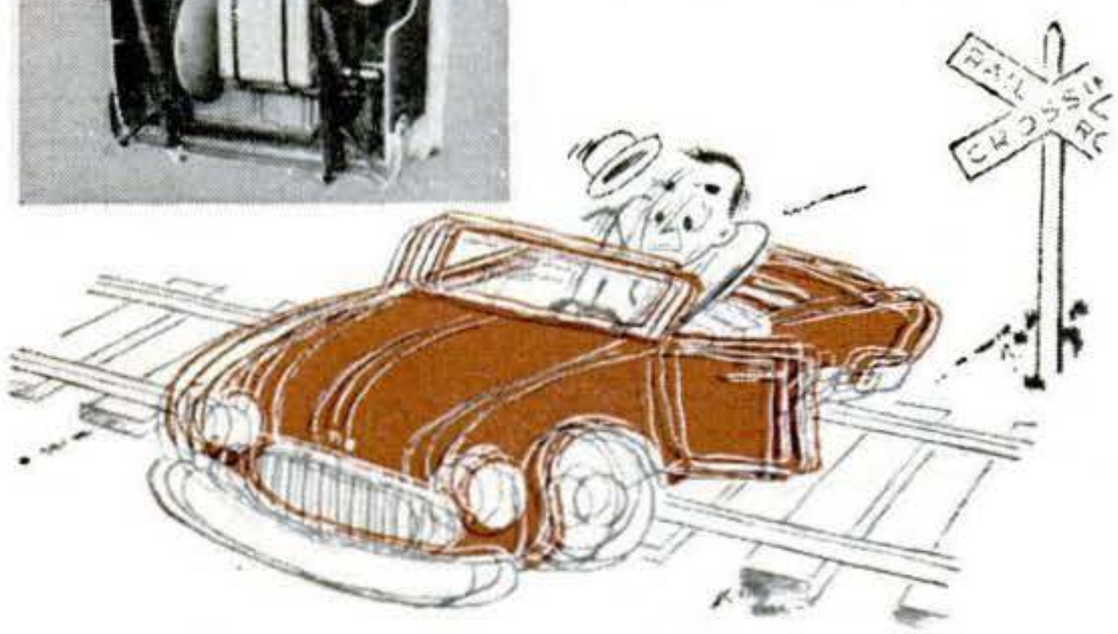
How are the weather seals between the top and the windows? Between the top and the windshield? Convertibles are better all-weather cars than they used to be. They offer more protection against rain, snow and low temperatures. If a convertible can't splash through a hard rainstorm without getting dribbles of water on the inside, it's behind the times.

How positive is the mechanism that raises and lowers the top? At one time this was all-electric. Now the best of them wed an electric motor to a hydraulic accumulator that adds muscle to the chromed scissor levers. When the con-

Copyrighted material



Absence of a stiffening steel top on convertibles necessitates the addition of an X member in frame, like that in car standing on its tail. It helps on railroad tracks



trol on the panel is turned, the response should be instantaneous and, above all, smooth.

The top material should be vinyl, or even Orlon, generously backed with a close-woven cotton fabric. The time was when tops, of cotton, would begin rotting and fraying within a year despite loving care.

The traditional mark of the convertible used to be its shudder in crossing railroad tracks. Its convolutions were those of an Airedale shedding water. But things have changed. Get down on your hands and knees and take a look at the heftiness of the X member that braces the frame. Better yet, *drive* the car over a bumpy crossing.

Most of the new bodies are stronger in other ways, too. But see for yourself. Does the seductive wire-wheel job in orange-yellow have stiffening members across the firewall, immediately behind the engine?

Passenger capacity? That rear seat, squeezed between the front seat and the well for the top, used to be sized for only the small fry. Now the leg room ought to be enough for adults. But don't accept the salesman's bland statement that the convertible is a six-passenger vehicle. It will hold no more than five nicely unless it's one of those monsters with a price tag like a yacht.

That rear plastic window ought to bear a fair resemblance in size to the rear window of a sedan. If it's small, beware. The wrap-around fabric in a convertible makes it blinder than cars with hard tops, and today's traffic requires visibility. Don't forget to order an outside mirror. Ripples in the plastic window distort the view in the inside mirror.

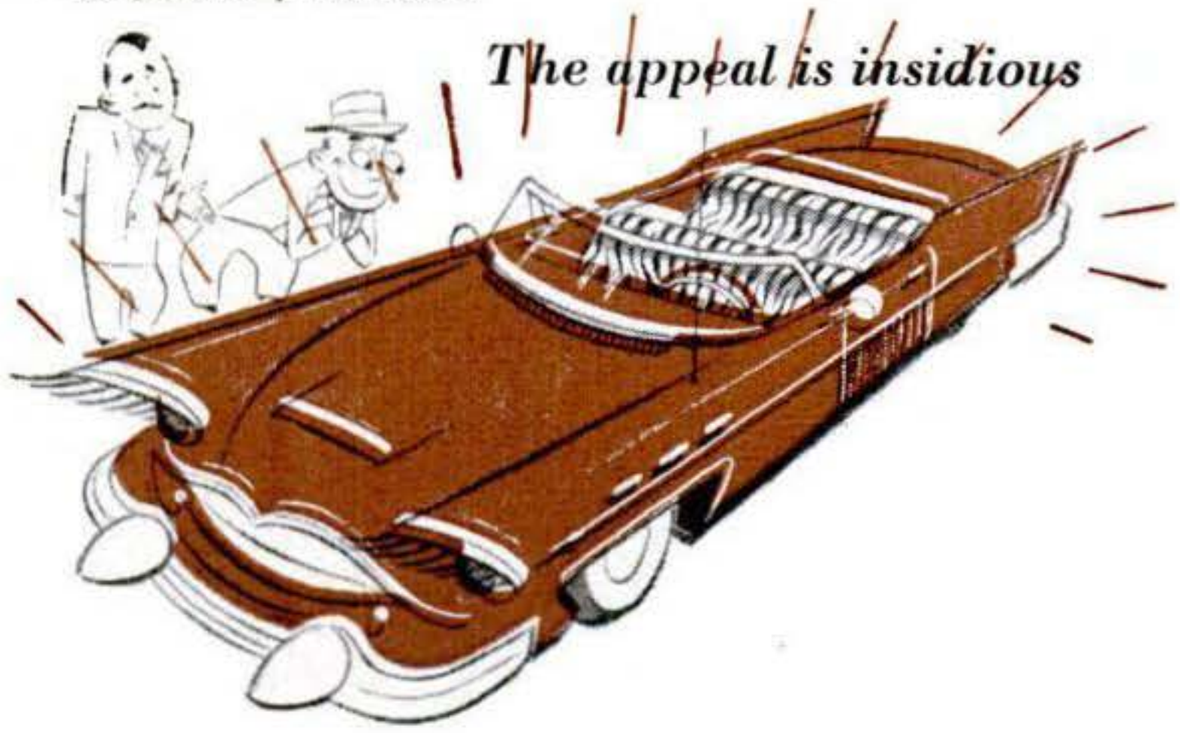
Power is no mere added luxury in a convertible. What's the horsepower? The torque? Convertibles are heavy. They scale from 100 to 200 pounds more than a comparable sedan. That's mostly due to the beefing-up in the body. A few dollars more, in many cases, will buy a power package to insure performance.

Finally, while convertibles are relatively expensive, the price need not be sky-high. The car exhibited in the salesroom may be tagged at $3,000 or more, freight and handling excluded. But what extra equipment has been loaded on it?

Its base price, without the frills and furbelows of an automatic transmission, power steering, power brakes, rain-sensitive machinery to lower the top automatically and leopard-skin upholstery, probably is around $2,200. That's only $250 more than the base price on a sedan.

The buyer, love-struck on a convertible, seldom gets away that cheaply, though. When he walks into a salesroom, the man is likely to say, "Well, I've got a dreamboat here, with a soft hat, white shoes, music and all the jewelry."

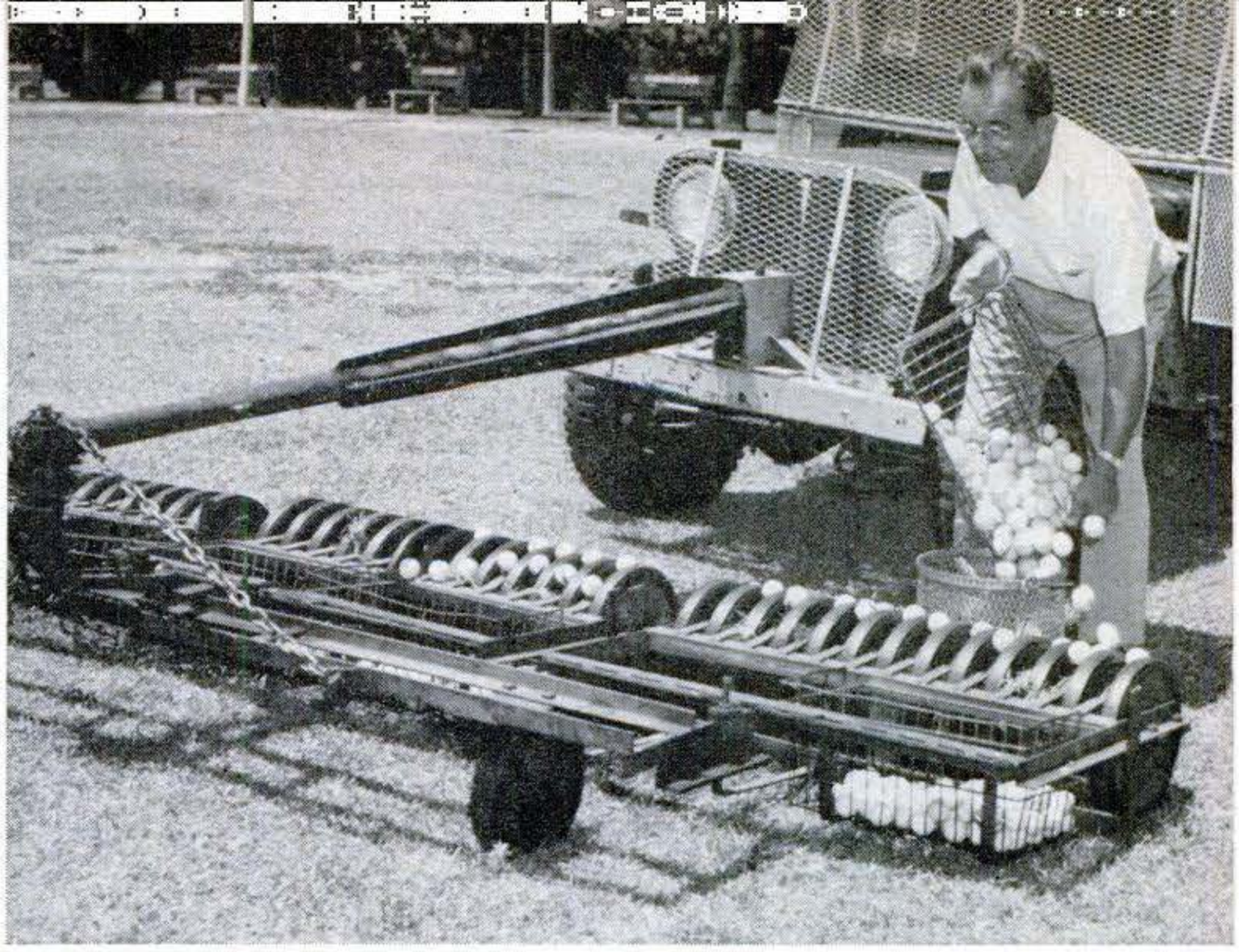
Take one look, brother, and you're lost.
—*Devon Francis.*



The appeal is insidious

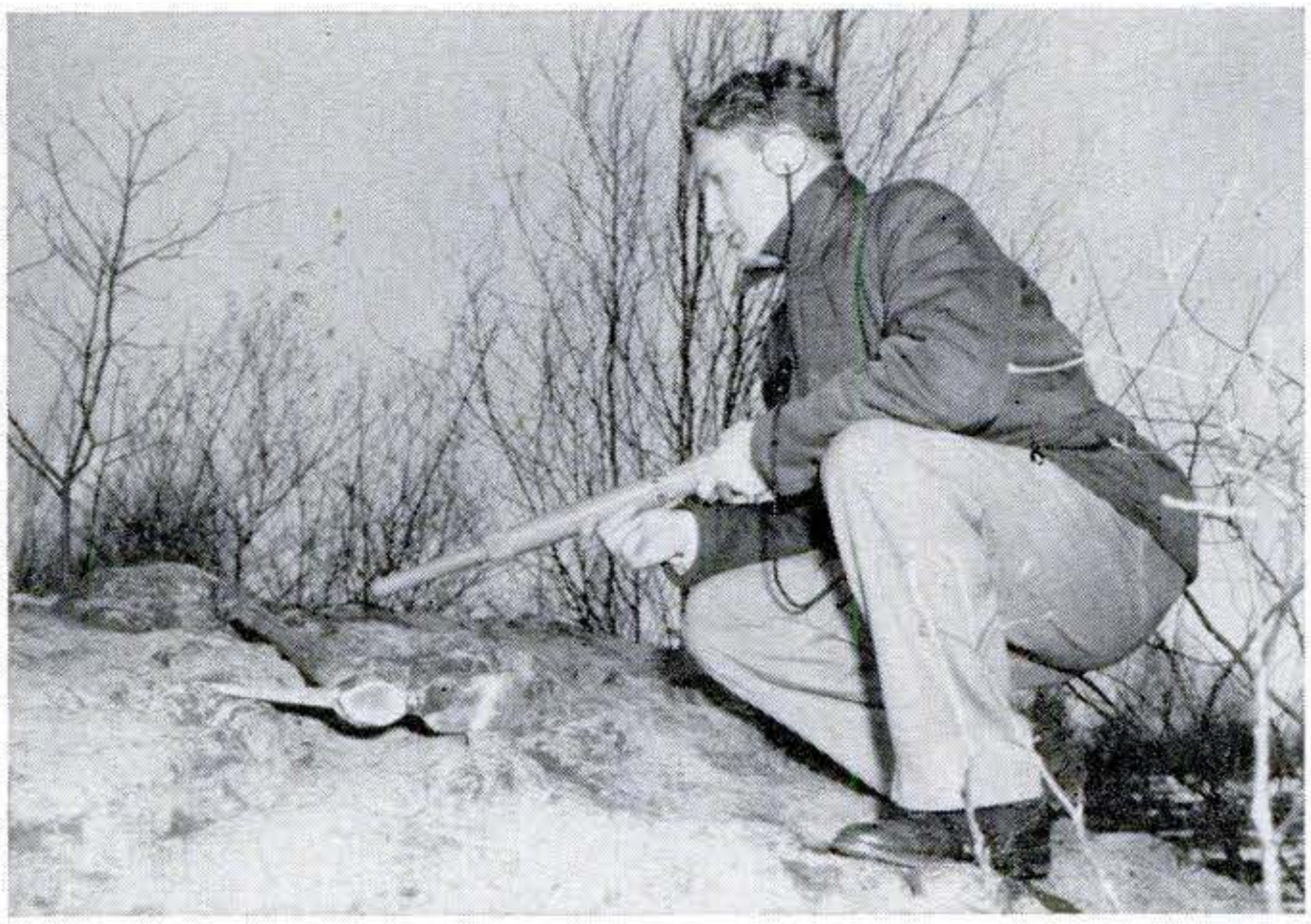
Copyrighted material

"Armored" Jeep Rakes In Balls On Golf Range



THE golf-ball retriever riding the front of this jeep clears a Miami driving range in a hurry. Caught between wheels, the balls are lifted and popped into the flat baskets attached to the front of the apparatus.

Netting enclosing the jeep protects the driver against flying balls as he rides the range.

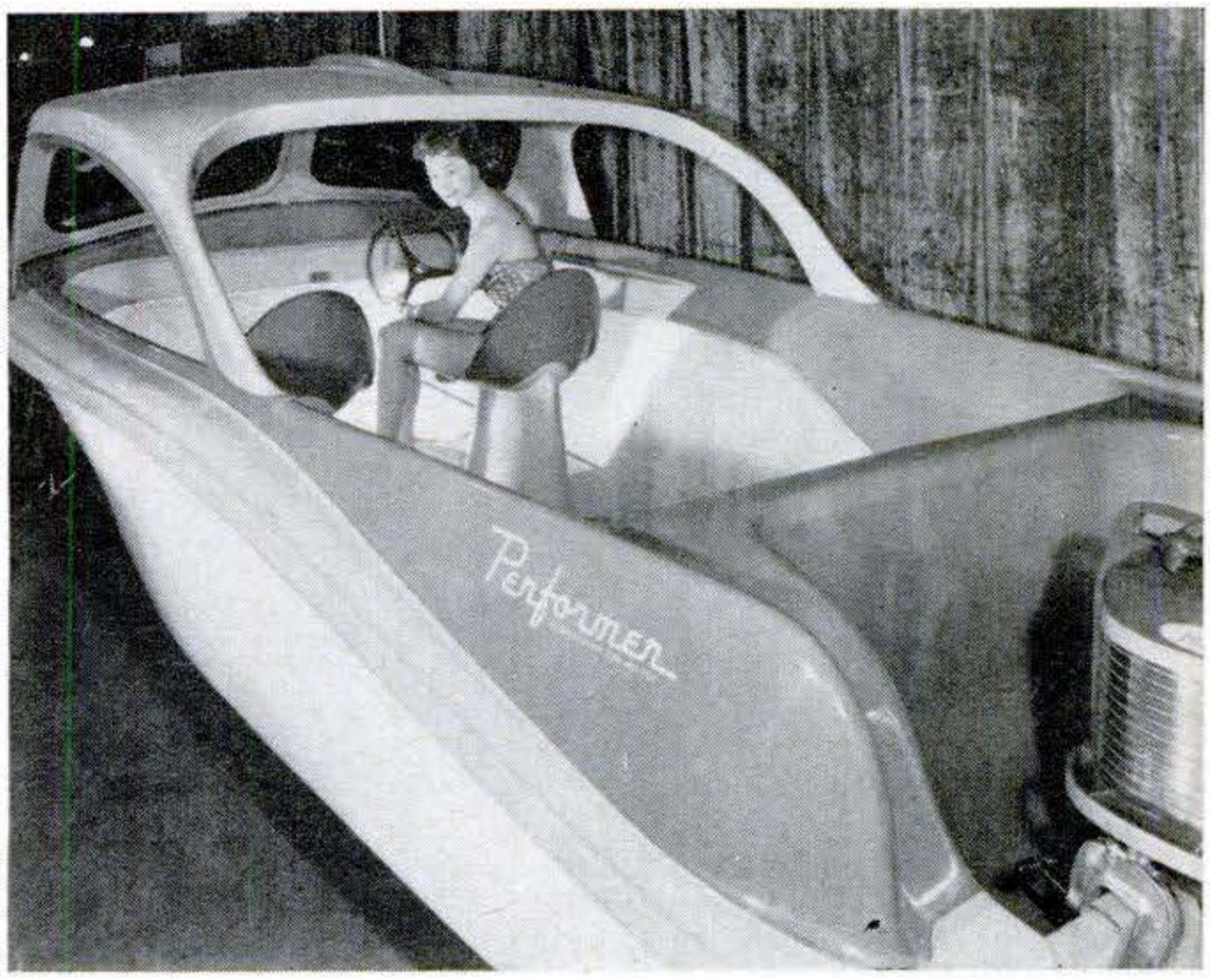


Uranium "Gun" Hunts for Radioactive Rock

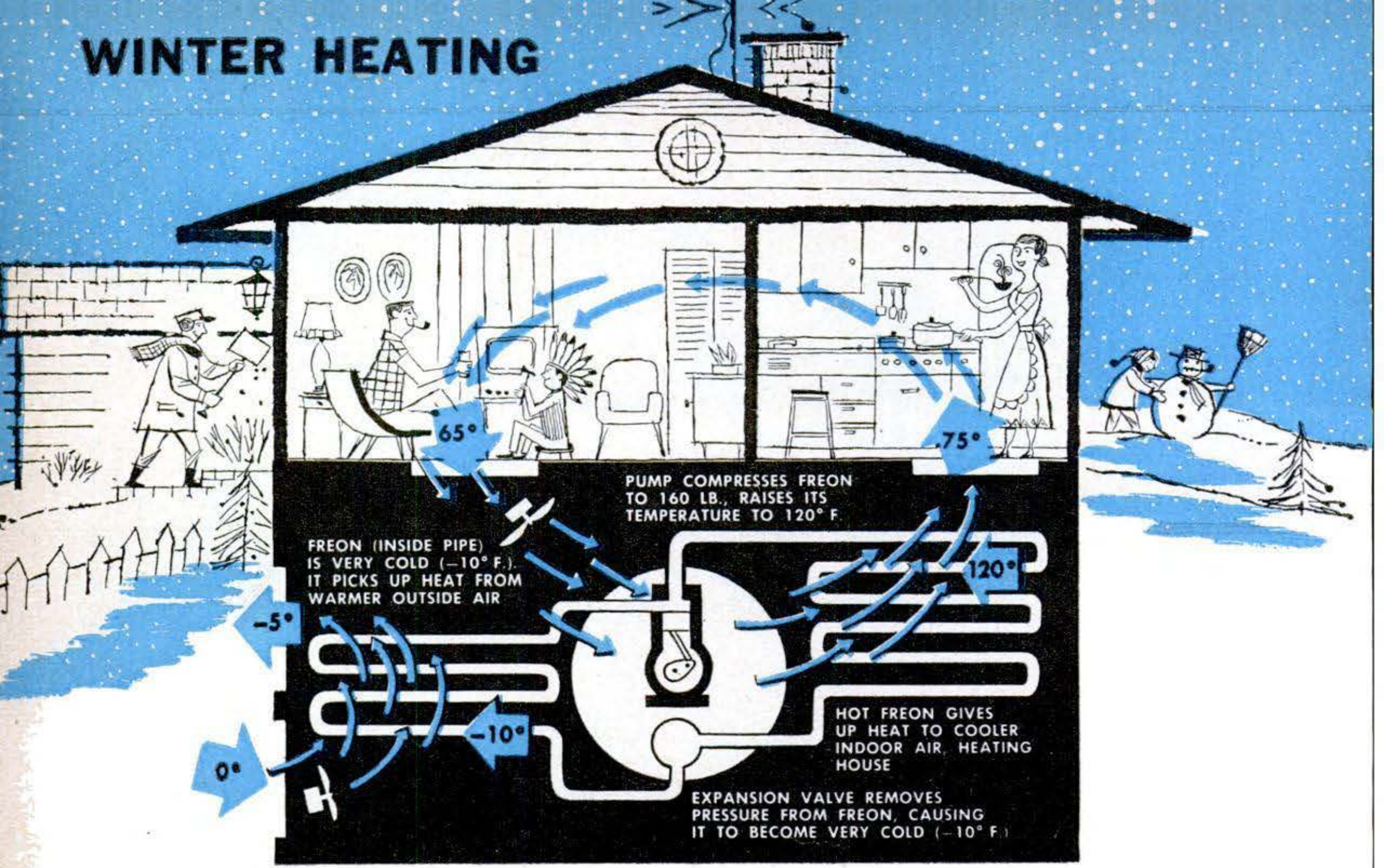
THE hunter at left is aiming at uranium—he hopes. Inside his "gun" there's a high-intensity counter tube and an amplifier. The instrument weighs less than two pounds and gets its power from a flashlight battery. Curtiss-Wright Corp., Wood-Ridge, N.J., designed the Radiatector for contamination surveys and lab analyses as well as for prospecting.

Plastic Cruiser Has Plastic Chairs, Too

HERE'S a sea-going "hardtop." It is all plastic—even the chairs are molded as part of the hull. The outboard cruiser has 18 flotation chambers to add buoyancy and rigidity. The deep rear cockpit keeps out backwash and the outboard-motor well is self-bailing. Car polish keeps the plastic shining and barnacles get no foothold—they can be brushed off the surface. U.S. Fiber Glass Products, Inc., Costa Mesa, Calif., makes the boat.



Copyrighted material



Now You Can Pump

Home unit takes warmth from the air and puts it inside in the winter, outside in summer.

By Herbert O. Johansen

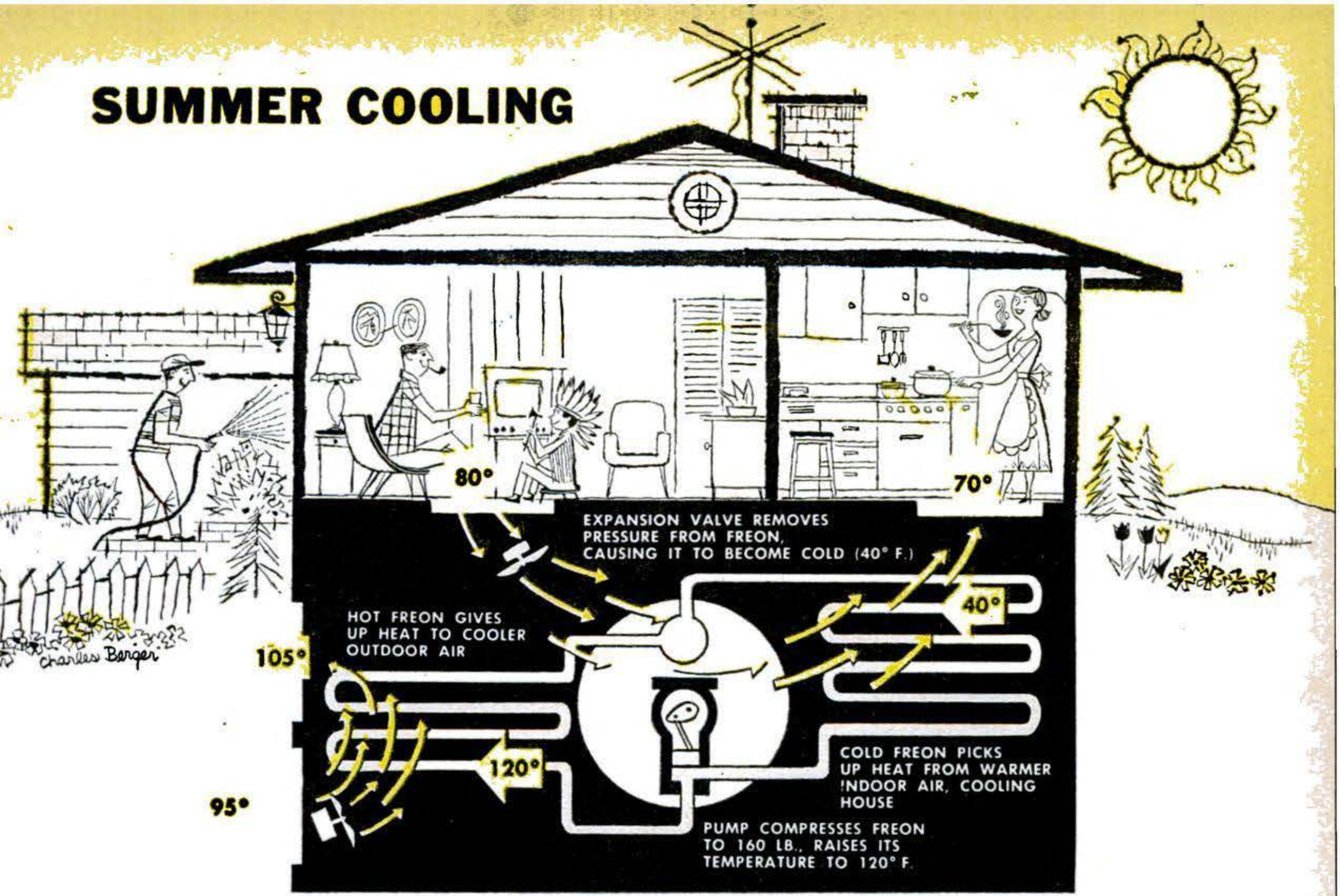
THE bugs have been engineered out of home heat pumps. Within 10 years, heat-pump manufacturers predict, more than a million U. S. homes will have automatic, year-round electric air-conditioning systems that use air as "fuel."

General Electric and Westinghouse are putting out packaged units now. They cost only a little more than good conventional heating and cooling systems. In most parts of the country, the electricity required to operate one of these systems is comparable to the cost of fuel oil, gas or coal. Manufacturers are working on low-cost heat pumps. And, if atomic energy reduces the cost of generating electricity, you may find heat pumps in low-priced homes as well as expensive ones.

Then, predicts William G. Cox, GE air-conditioning expert, heat pumps will supply hot water and running ice water, handle all food refrigeration, take care of low-temperature cooking (up to 212°), and store heat for use when needed.

Houses without chimneys will be commonplace, since a heat pump requires no furnace outlet. All windows can be permanently sealed, since the machines circulate plenty of fresh air. Dusting will be practically eliminated. A heat pump creates no dirt of its own, and with a glass-fiber filter in the indoor air intake, it serves as a central vacuum cleaner. You'll feel no humidity, even on the muggiest days.

Copyrighted material



the Heat In or Out

How do heat pumps work? Charlie Berger, the artist who made the drawings above, had never heard of a heat pump until I started explaining.

"You mean," he asked, "that even if it is zero outside you get heat out of that freezing-cold air and pump it inside to warm your house?"

"That's what an air-source heat pump does," I said.

He looked at some rough sketches. "And according to these, in the summer the thing reverses itself and cools your house by picking up heat from the inside air and pumping it outside, even on the hottest day?"

"Right again," I said. "The heat pump picks up heat from the air and puts it where you want it, outside in the summer for cooling, inside in the winter for heating."

He didn't look convinced.

"Of course," I said, "some heat pumps —more complicated to install—get their heat out of the ground and others out of water."

"And I suppose," he said, "that they take heat from the house and put it into the ground or water for summer cooling." When I nodded, he almost walked out.

"Wait a minute, Charlie," I said. "It's really very simple. You have a heat pump in your house now."

"I have?" he asked.

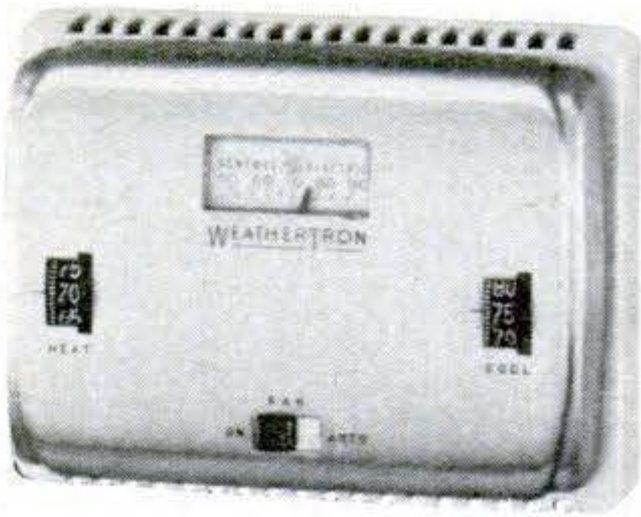
"***Your electric refrigerator*** is a heat pump. It keeps food cool by taking heat out of it. That heat is transferred to an outside coil at the back. When the refrigerator is working, you'll find that the coil is quite warm."

He nodded agreement.

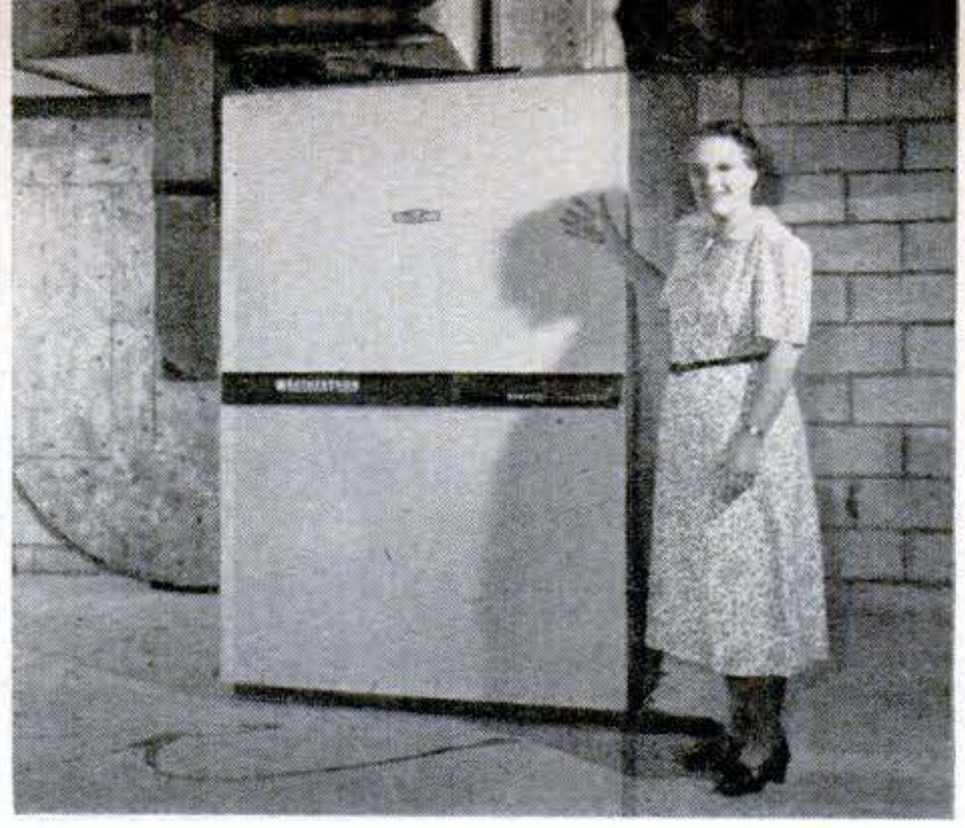
"Now," I went on, "let's suppose you put your refrigerator in a wall with its

Copyrighted material

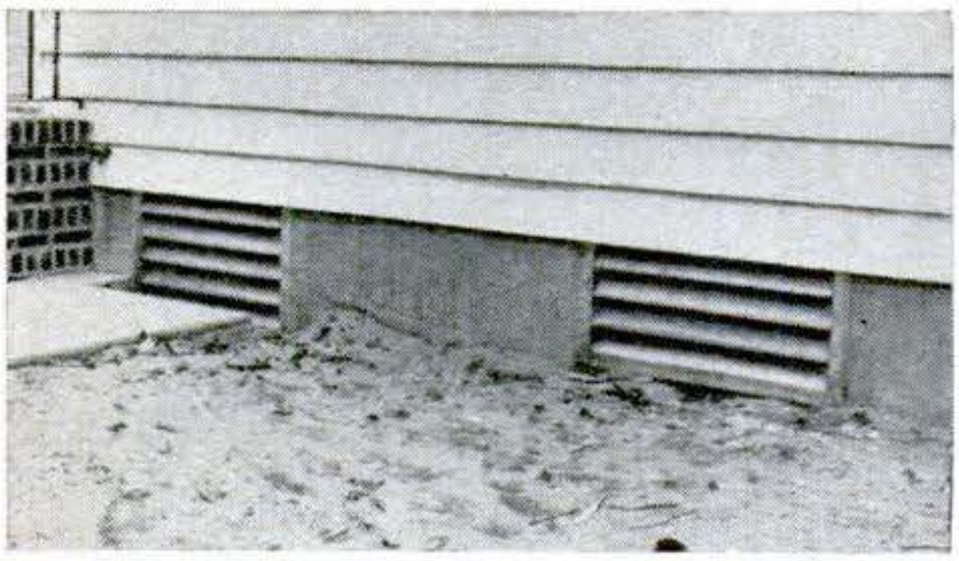
These are the parts you will find in a heat-pump home



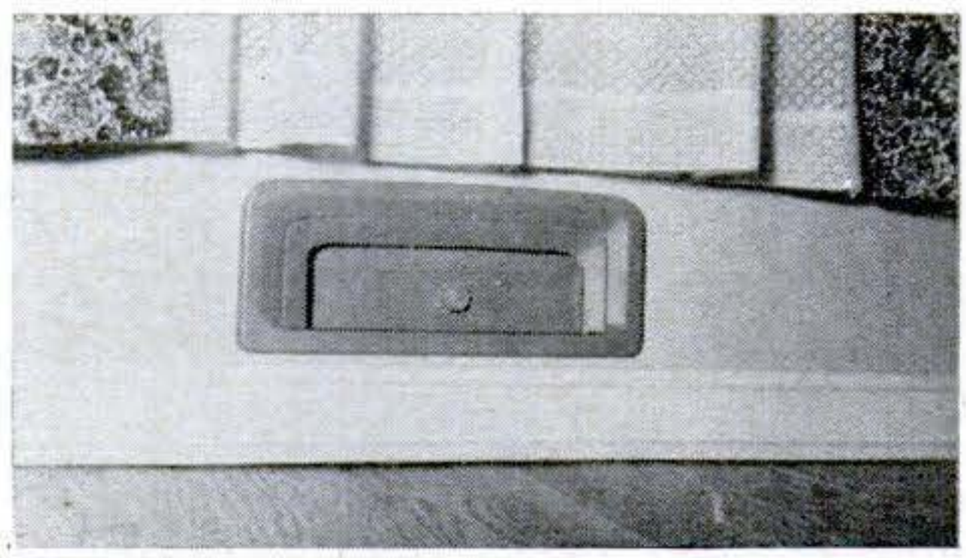
WALL THERMOSTAT has dual controls—heat and cool. If house becomes warmer than a preset temperature on the cool control, machine automatically goes to cooling.



LOCATION of the heat-pump unit is not important so long as it has easy access to outdoor air. Here is a basement installation of the new GE Weathertron.



OUTSIDE AIR enters left louvered opening, is blown out through the other. Passing over Freon-filled coils, air gives up warmth for heating, removes it for cooling.



ROOM REGISTERS blow warm in winter, cool in summer. So gentle is the air flow that, when this photo was taken with the pump in operation, curtain hardly stirred.

door open outside and its coil facing inside. Instead of taking heat out of food, it will take heat out of the outside air and transfer it to the coil inside the house. It has taken heat from outdoor air and put it indoors."

"I get it," said Charlie. "If I then turned the refrigerator around with the door inside, it would take heat from my house and put it in the coil outdoors."

"That, in principle," I said, "is an air-source heat pump."

As you can see in Charlie Berger's drawings, a heat pump's machinery has an indoor coil, an outdoor coil, with fans for each, and a compressor. For heating, this is what happens on a zero day:

Freon 22 refrigerant (used in the newly announced GE Weathertron heat pump) is pumped into the outdoor coil where it is cooled down to minus 10°—10 degrees colder than the outdoor zero air. Since heat tends to flow from a higher temperature to a lower temperature, the Freon picks up some outdoor heat—in this case, five degrees—as it is blown over the coil.

The Freon is then compressed, in the process reaching a temperature of about 120°. This warm Freon is pumped through the indoor coil. Cooler air, sucked from the house, passes over this coil, is warmed, and blown back into the house. The Freon continues its circuit, getting cold again when the pressure is removed in an expansion valve, and is ready to pick up more heat as it goes through the outdoor coil again.

For summer cooling, the cycle is reversed. (Although Charlie Berger's schematic drawings show the compressor and expansion valve on physically different locations for heating and cooling, the summer reversal is accomplished automatically by transfer valves.)

Cooled Freon passing through the in-

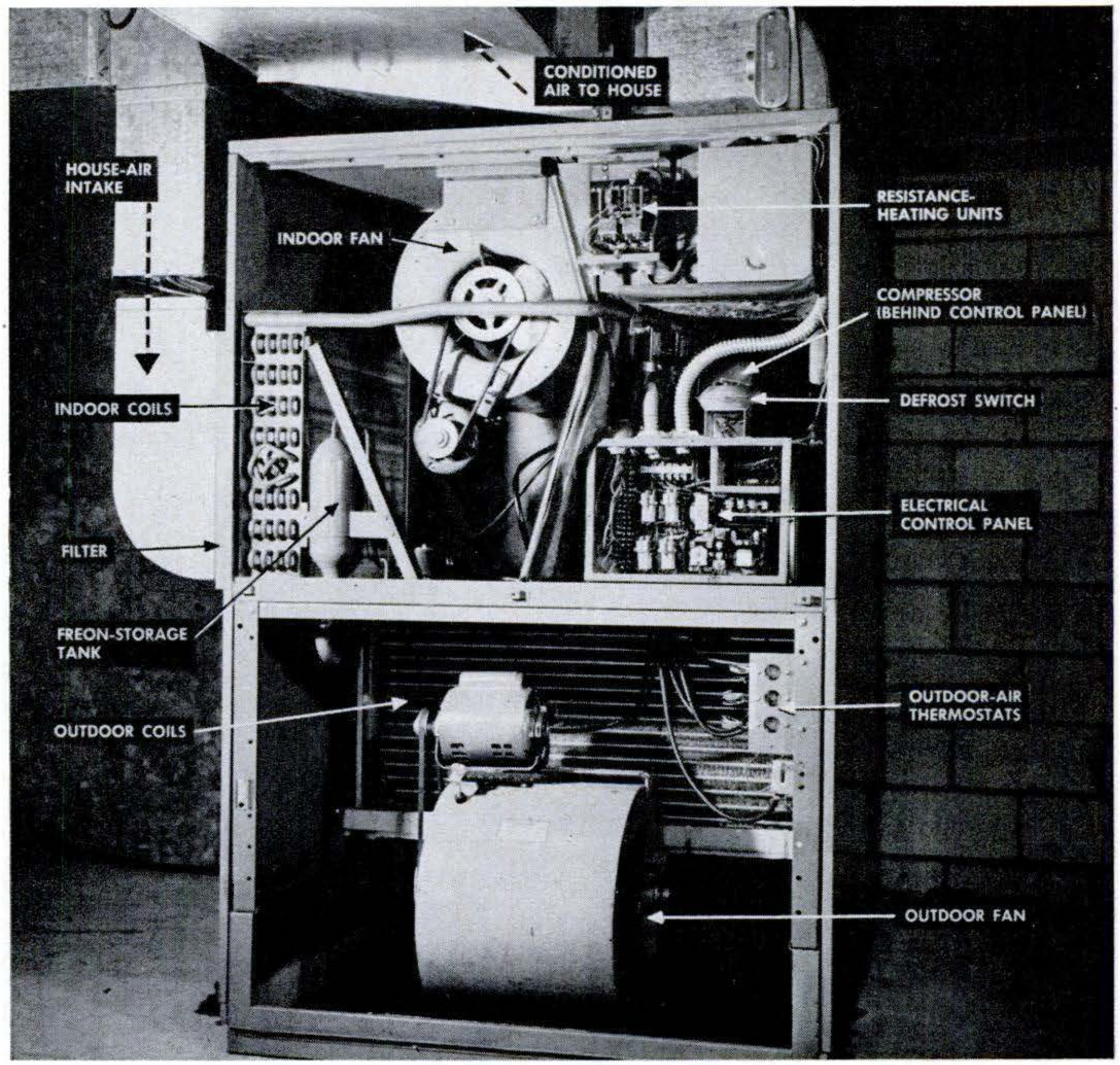
Copyrighted material

door coil picks up heat from the warm house air that is drawn over it. This cool air is blown back into the house. The Freon in the coil, now warmer, goes to the compressor, where, under pressure, its temperature is raised. When it is pumped to the outdoor coil, it is warmer than the outside air, getting rid of the heat it picked up in the house.

Air-source heat pumps on the market today have ample cooling capacities, but the colder it gets outdoors, the more difficult it is for them to extract heat from the air. Below certain temperatures, the machine needs help. This is furnished automatically by supplementary electric resistance heating units.

For good reason, the resistance units are used only for short on-and-off periods during really cold weather: With resistance heat, electricity is burned directly to give heat, delivering one unit of heat for one unit of electricity. The heat pump does not burn electricity directly but uses it to operate a machine that extracts heat from the air. It gives out about three units of heat for one of electricity. END

Inside the heat pump—a machine that makes weather



WEATHERTRON HEAT PUMP is designed for a small (six-room) house. Cost of installing complete system will run from $2,600 to $3,500. A larger size for bigger homes is available.

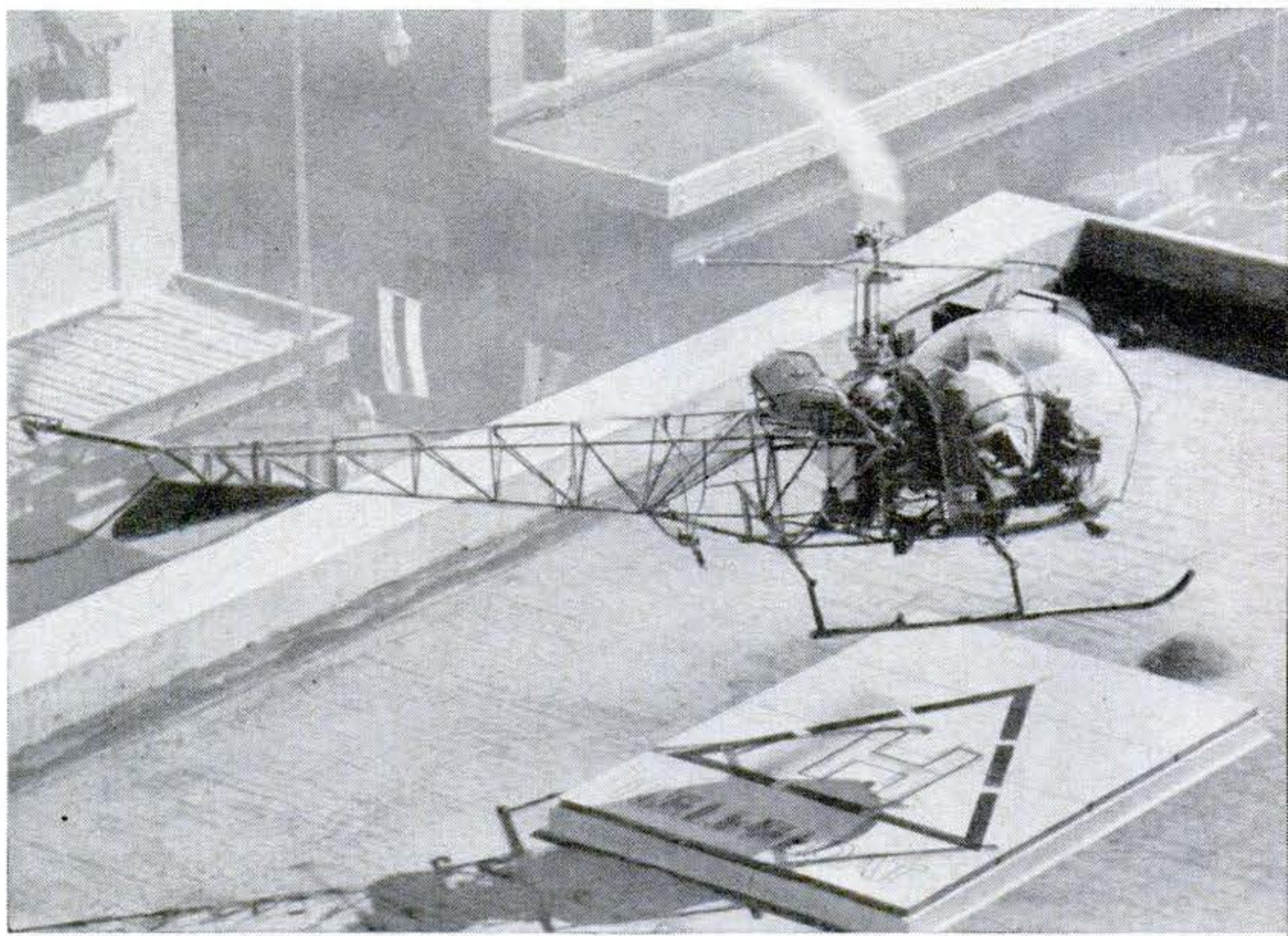
Copyrighted material

A rescue scoop that dips up ditched airmen like fish in a net is being tried out by the British. A tubular frame keeps the scoop open as the copter trails it through the water. Cords fixed to the hauling line close the net over its catch. Injured men can be rescued with greater safety than by the older sling method.

▶▶▶Ever see a copter spin in and land without a pilot? Kaman Aircraft has designed a remote-control job for the Navy. Test flights so far have been within eye range of the ground operator and there's been a pilot aboard the "drone" copter to take over the controls in case of emergency.

Helicopters Show Off New Tricks

There's no splash when this copter lands on its rooftop heliport, but it sits down on water just the same. The rigid platform floats on a liquid cushion that distributes the weight of the copter evenly over the roof by hydrostatic pressure. The water also acts as a fireproof shield and a noise barrier for the building. Interlocking panels that form the float weigh only five pounds a square foot, but each square foot can support 6,000 times its own weight. The Thomson Research Co., Mesa, Ariz., makes the Heli-Float.



Copyrighted material

Tail up, this lashed-down sub hunter is going through its paces to prove its worth as a "tug." The Navy will say only that the helicopter is being tested as a "tow craft for armament." The specially designed tilting platform sets up the copter for attitude tests so that Bell engineers can record flight data on the ground.

Look, no wheels. Maybe that's why this Army XH-39 has copped two copter records. With its landing gear tucked up and its 400-hp. gas-turbine engine going full blast, it has churned through clouds at 156 miles an hour and bored a hole through the sky 24,500 feet up. The 2,200-pound Sikorsky's large cabin with 81-cubic-foot capacity can carry three passengers and 100 pounds of baggage, two litter patients and a medic, or 800 pounds of cargo.

Copyrighted material

That Wonderful Machine on Your Wrist

By George Kent

Swiss watch is a 1/100,000-hp. engine—put together by hand with tools that can split a hair.

NEVER underestimate that watch on your wrist! It runs on 1/100,000 of a horsepower, yet think of the work it performs. Its balance wheel makes five forward jerks and five stops every second—864.000 moves a day at a speed of about 60 miles per hour. And the punishment it can absorb! A friend of mine once left a watch in a shirt pocket, and it wound up in a washing machine. Whirled and beaten and battered for an hour in hot, soapy water, it came out to tell the time accurately.

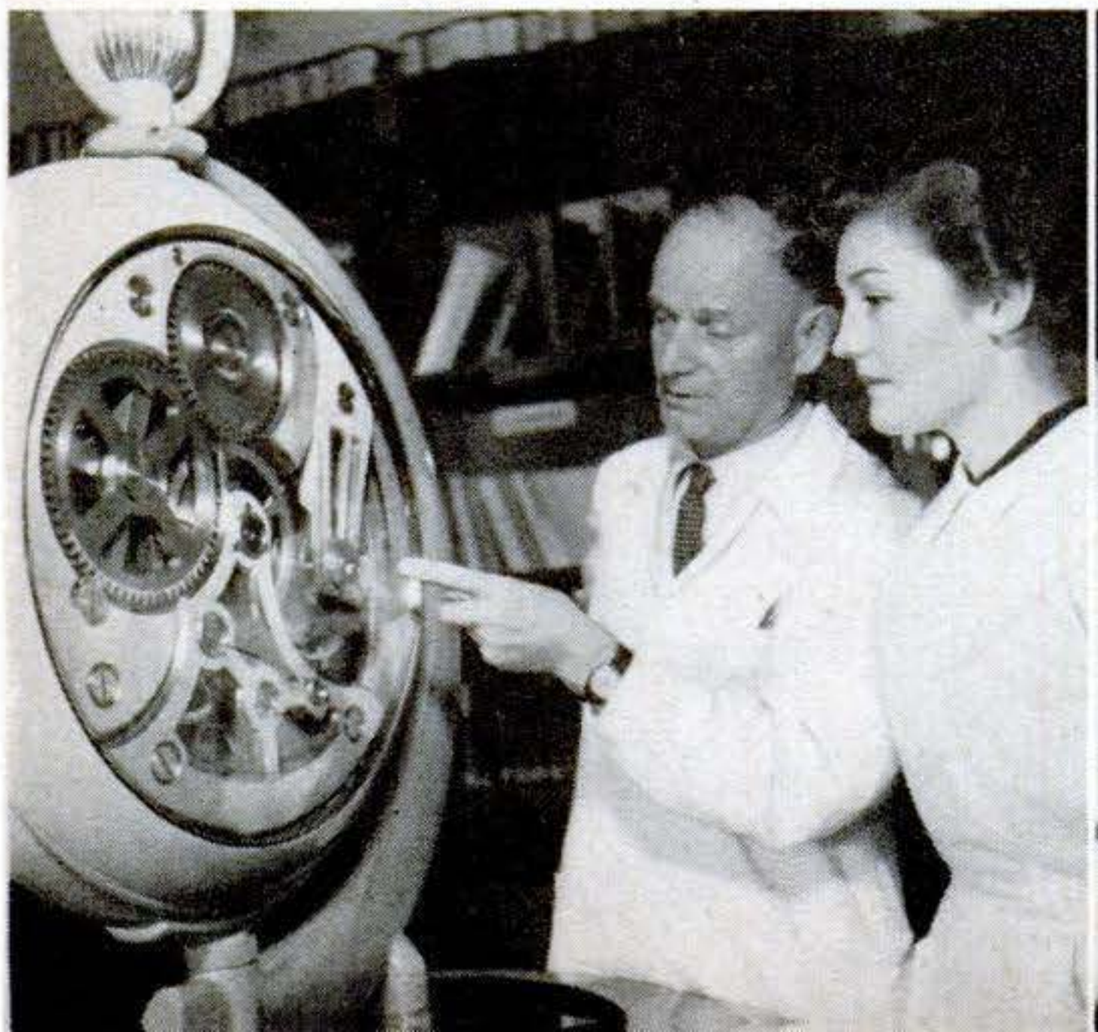
The people of one small nation know better than any other how to make these remarkable instruments: Switzerland today produces 60 percent of the world's timepieces, and, in doing so, achieves a minor economic miracle. (A pound of Swedish steel unloaded in Geneva costs $5. By the time Swiss watchmakers have finished turning it into hairsprings, the same pound of steel is worth $5,000.)

The watch industry got its true start as a Swiss industry some 300 years ago when an Englishman—so the story goes—took a ride through the Jura Mountains. There, in the Swiss village of LaSagne, his watch stopped. Rather than carry the useless thing around with him, he asked a blacksmith named Daniel Jeanrichard to repair it.

A big man in a leather apron, Jeanrichard confessed that he had never seen a watch before, but he would try to fix it. Like all of the Jura people, he was handy: not only did he fix the watch, but later he made another for himself, from memory.

It wasn't long before neighbors—farmers, shepherds, locksmiths, carpenters—saw Jeanrichard's watch and learned how to make a watch themselves. Then men in other villages followed suit, until the craft spread up and down the mountains. This was a pleasant, absorbing trade, exactly what these people needed to while away the tedium of six-month-long winters. It was their patience and skill, combined with the bril-

IN HOROLOGICAL SCHOOL a giant model is used to explain movement of jeweled-lever watch.



STUDENT regulates hairspring so balance wheel will oscillate exactly 18,000 times an hour.

Copyrighted material

Swiss watchmaker examines 120 parts for a man's wristwatch spread out on glass table top.

liant improvements and inventions of the Geneva artisans that concentrated watchmaking in Switzerland.

Today Switzerland exports approximately 33,000,000 watches and movements per year. Most of them are turned out in the 2,500-odd shops and factories which employ some 70,000 men and women. A small number, however, are still made in the old-fashioned way in farmhouse living rooms by men who manufacture everything they use, from balance wheel to second hand.

There is no assembly line, as we know it, in a Swiss watch factory. There is very little noise. Here and there are mountain-sized machines that labor to bring forth mouse-small parts, achieving tolerances of 1/20 the thickness of tissue paper. One jig borer can split a hair into 50 equal parts.

For all this mechanization, 60 percent of watchmaking is hand labor. Out of the 1,400 operations that go into making a timepiece, 1,000 are done by craftsmen who work under conditions that would give a normally nervous man the jumping jeebies.

Talking is taboo, not only because it distracts but because vapor issuing from the mouth can have a corrosive effect on a watch's parts. A sneeze is a near-crisis, and a yawn at the wrong moment may seriously impair accuracy.

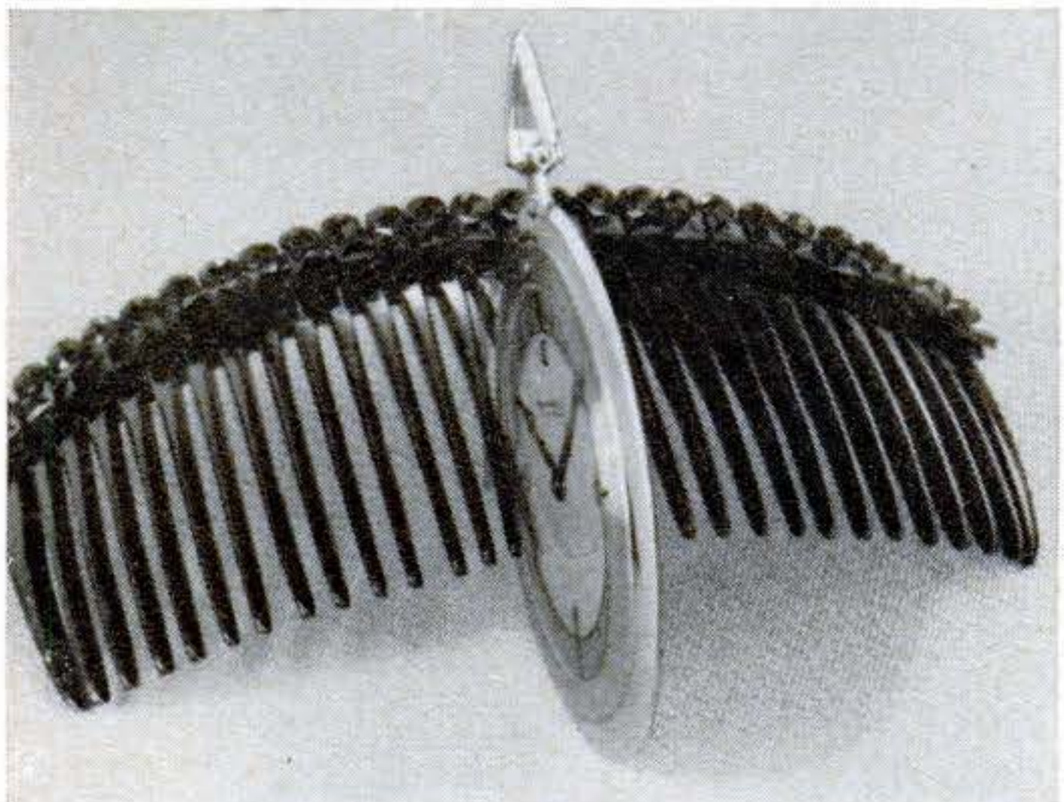
Perspiration is also dreaded, and the chronic sweater either quits watchmaking or keeps drying his hands. Smoking is forbidden. Women may not wear perfume. Every worker, when he enters, sheds shoes and dons slippers and smocks, to protect the movements from the dust of street clothes.

For the dainty and painfully precise job of attaching the hairspring, women are universally employed; men are, as a rule, too heavy-handed. A crook of so much as a millimeter in this delicate gadget, the merest overstretching, and

Copyrighted material

your watch is off by minutes. Men are experts in other departments, however, including the handling of pepper-speck-size screws—so small that 50,000 of them will fit into a thimble!

That craftsmen in so precise a profession as this should be well rewarded seems only right. In an earlier day the Swiss watchmaker earned twice as much



Thinnest watch fits between teeth of a comb.

as any other journeyman, and in that day he was the only journeyman permitted to carry a sword. Today he earns 20 percent more than any other Swiss artisan, and is among the highest paid in Europe.

Why are the Swiss so skilled in making watches? The inheritance of patience and a passion for exactitude are factors in the development of such skill, but most Swiss believe that chief credit should go to the schools.

There are seven horological schools in Switzerland which are, in fact, topnotch schools of all-round technology. The shortest course is 15 months—for certain *régleuses*, the girls who attach the hairsprings. The longest is seven years—for a master watchmaker. Employers are lined up waiting for them as they graduate. There is little unemployment in this industry and there has been no serious strike for 16 years.

The applicant for admission to a watchmaking school submits himself to a set of aptitude tests. In the first, he is given a plate covered with small holes which range in diameter from a hairbreadth to 1/16 of an inch. With this, he is handed a pair of tweezers and a box of screws. He is required to pick from the box the screws that will fit, and then screw them into position. His errors are noted, and as he works, he is timed.

In a second test—also aimed at assessing an applicant's judgment of size, depth and distance—he is shown a pair of calipers several feet away. Task: to set the pair he holds in his hands to correspond with the remote pair.

In another he is given a length of wire and a pair of pliers, with instructions to bend the wire to match a geometrical figure drawn on a sheet of paper.

There are at least a dozen such tests, and they differ little from school to school. At the end of the first semester they are repeated. If a student has not improved in his ability to do them, and if there are no extenuating circumstances, he is dropped.

Once admitted to a school, the student's first task is to cut a block of wood down to millimeter-precise dimensions. Then he is given a watchmaker's diminutive lathe, which will be his to clean and care for as long as he remains in school. In time he makes his own tools. A watchmaker has more dies, gauges, stamps, awls, screwdrivers and punches than a surgeon has knives. No craftsman worth

Braille watch, for the blind, has raised points.

Copyrighted material

his salt has any less than $250 worth.

During his course, each student makes every part of four chronometers. A chronometer has 300 parts, as compared with the 150 of an ordinary watch.

In their classroom work students are taught geometry and trigonometry, languages, drawing, astronomy and metallurgy. They are lectured on the theory and history of timekeeping and, with the aid of films and a huge model watch with a winding knob as big as a cabbage, learn what goes on behind every tick.

Out of Switzerland have come most of the modern advances in watchmaking. The Swiss were the first to put jewels (as bearings) in watches, the first to make a foolproof escapement, the first to combine nickel and steel in the modern hairspring, the first to make watches that were waterproof and self-winding.

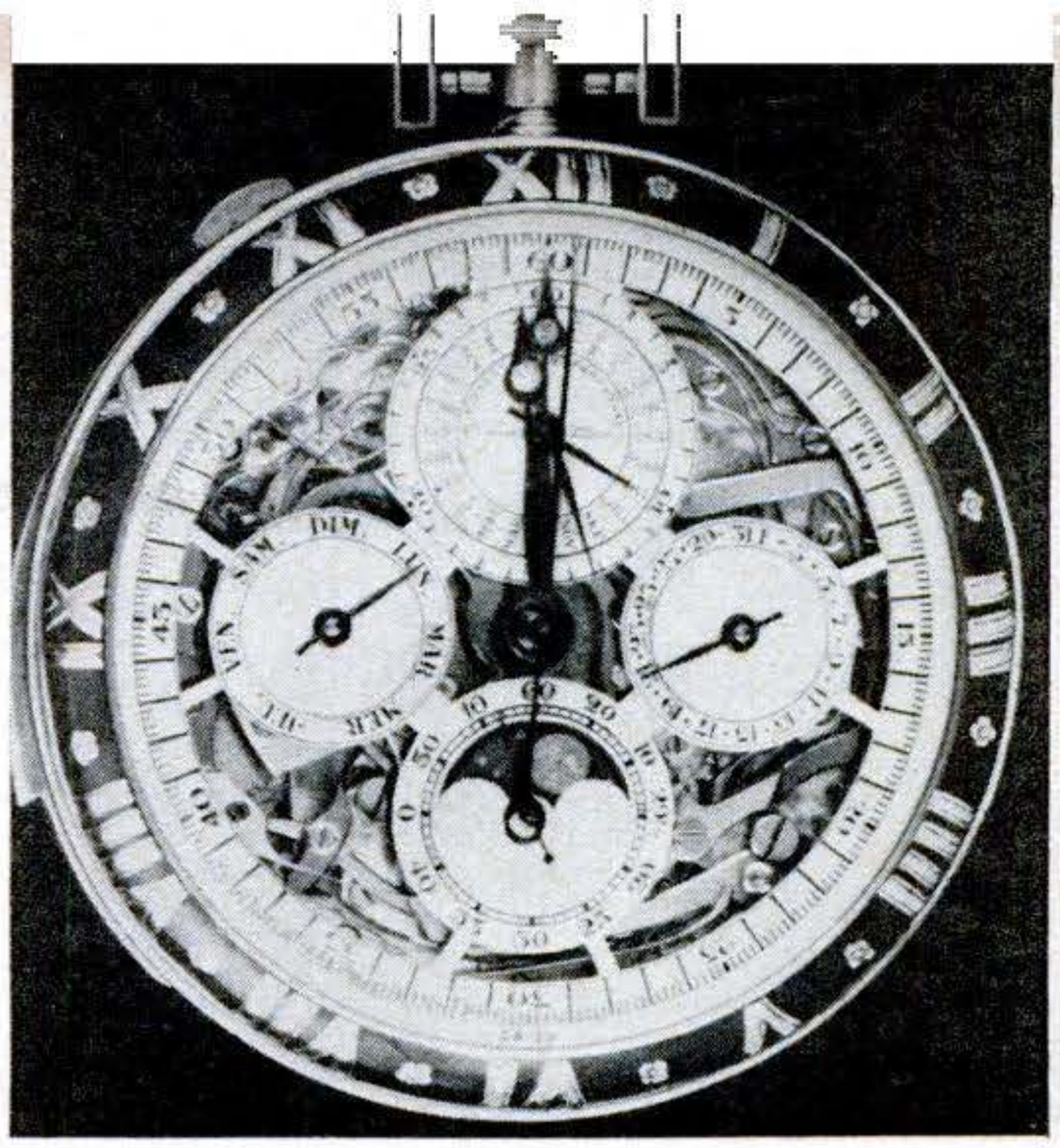
It takes only a few seconds to wind a watch, yet for 200 years men have been trying to produce a satisfactory self-winder. One man decided that the best scheme would be to use the wind. So he worked out a drive shaft that connected his timepiece with a weather vane on the roof. It worked, but you couldn't take it with you.

Change in air pressure, caused by opening and shutting doors, was another fellow's idea—and it also worked. The trouble was that on a quiet evening at home, with no one coming in and out, the watch would run down.

Another inventor tried using temperature changes. He put a thermometer inside his watch, and when the mercury rose by as little as two degrees it forced up a bar that kept the instrument going.

One of the best self-winders—and a promise for the future—is a clock now in operation in Neuchatel. A photoelectric cell converts light into electricity and provides propulsion through a quartz crystal.

For popular use over recent decades, however, the Swiss have been leaning on a device invented by Abraham-Louis



Complex chronometer tells time, day, date.

Perrelet about 200 years ago—a weight inside the watch which swings on a pivot whenever its owner moves. In effect an internal pendulum, this is the principle of most present-day automatic watches.

An ordinary watch with a single movement is remarkably complex to produce. When you add wheels within wheels, pack movement upon movement, so that a watch will perform certain extracurricular jobs, the production process becomes almost incredible. Here the extraordinary skill of the Swiss comes into play. Into a single case they have packed as many as nine movements, each one designed to perform a specific recording job, and all have worked together in perfect harmony.

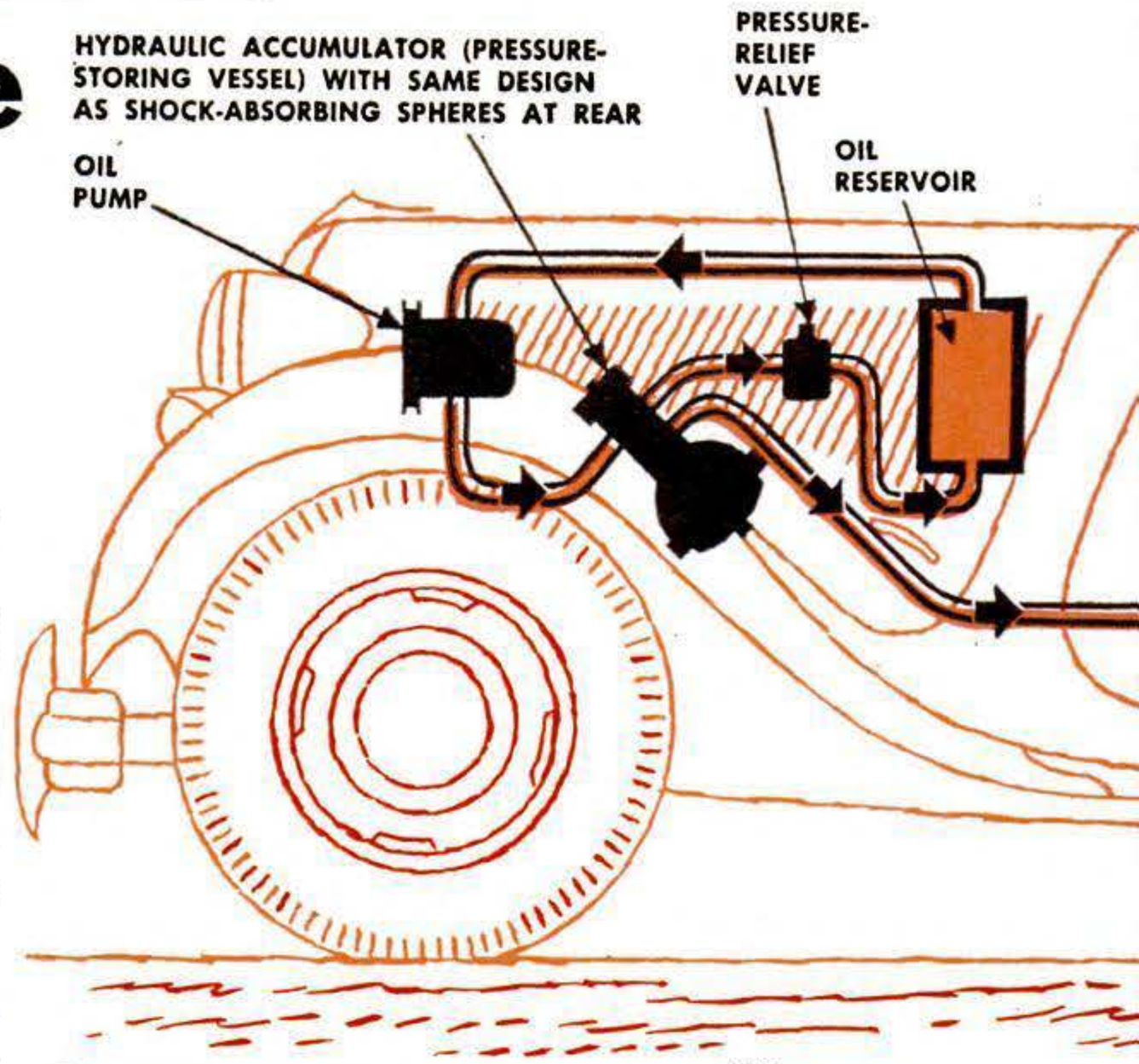
The Swiss have made watches for recording distances, for taking the pulse, for counting breaths. They have made slide-rule watches, production counters and telephone timers that let you know when your three or five minutes are up. They have worked out special watches for parachute drops, for underwater swimmers, for mountain climbers and tide-tellers. They have produced watches with concentric dials that give you solar time, lunar time and the time anywhere in the world. For the last Olympic Games they developed a camera watch that not only recorded photo-

[Continued on page 272]

Copyrighted material

Jackknife Car Gives Cushioned Ride

Rough roads are made smooth by hydropneumatic suspension available in a current Citroen.



TO SUPPORT REAR WHEELS on trailing arms, new hydropneumatic suspension applies oil pressure from engine-driven pump as shown.

REAR wheels trail on pivoted arms behind the chassis to smooth the ride of a new French car—a special extra-price model of the five-passenger Citroen "15" introducing hydropneumatic suspension.

Through downward extensions of the wheel arms, the car's weight is supported at the rear by a pair of pistons, in cylinders containing oil under pressure.

When a rear wheel rides over a bump, its arm rocks and actuates its piston. Through a small orifice, oil flows between the cylinder and a metal sphere, in which inert gas cushions the shock.

Joined by a flexible torsion bar, the arms swing independently. Front-wheel drive enables rear wheels to idle.

Under the hood, an engine-driven pump feeds oil from a reservoir to a hydraulic accumulator (a pressure-storing vessel) and thence at automatically regulated pressure to the pair of cylinders.

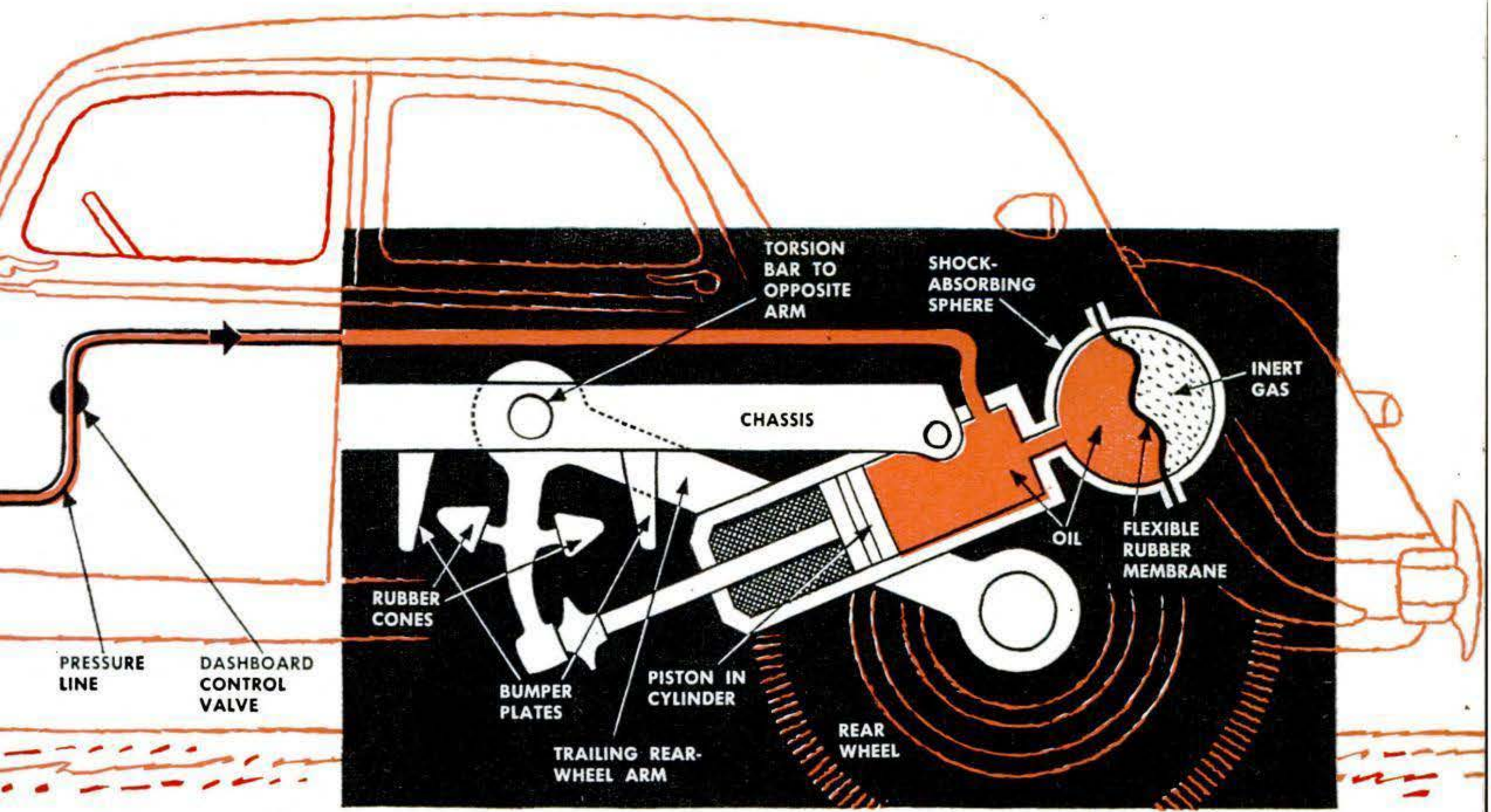
If wheel arms swing a little farther than in normal action, rubber cones on their extensions bear against bumper plates on the chassis. This limits settling or rise of the rear of the car from deficient or excess oil pressure. With engine stopped the car settles to the cone-and-bumper stops, observers say, despite a dashboard valve intended to seal pressure; but running the engine again for a few seconds restores pressure and readies the car for the road.

In response to a control valve in the trunk, the car frame jackknifes, then lifts a rear wheel from the ground—a handy aid in changing a back tire.

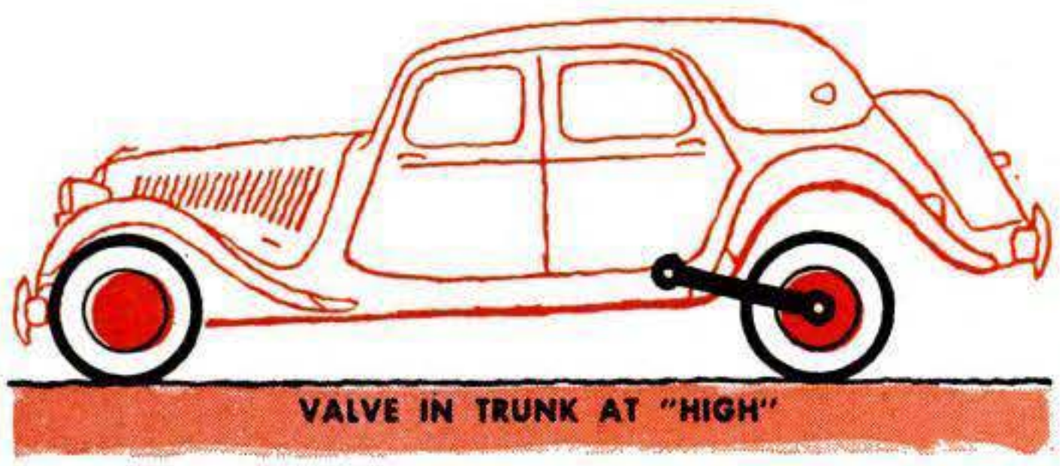
This Swimmer's a Frogman on Ice

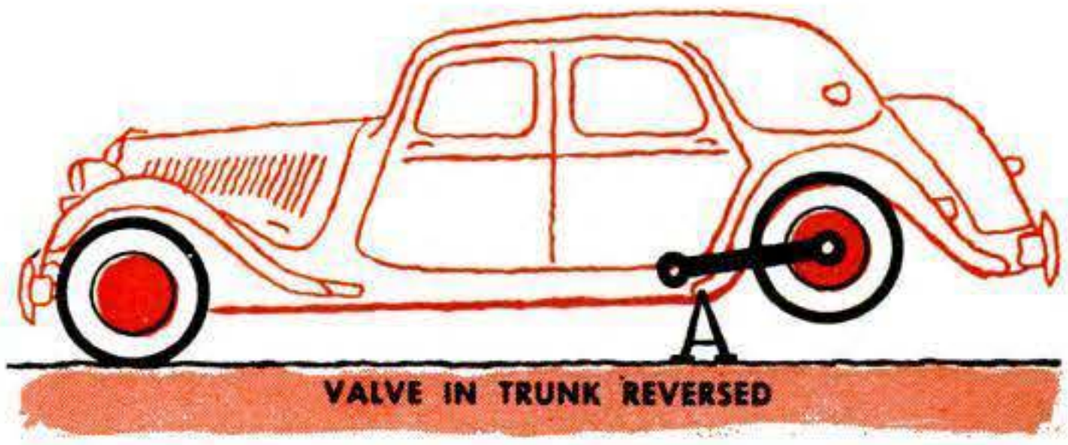
"COME on in, the water's freezing," this Navy underwater demolition man may be calling to teammates from the USS *Burton Island*. Their chilly job was to test the effectiveness of explosives and special gear (here, an underwater camera) during an Arctic spring cruise.

Copyrighted material



Gas in spheres cushions shocks. Even on rough road, ride is said to be so smooth that you can read, write or fill a glass of water. Special six-cylinder Citroen "15" with this innovation is priced at about $2,685 (940,000 francs), approximately $200 more than regular model.

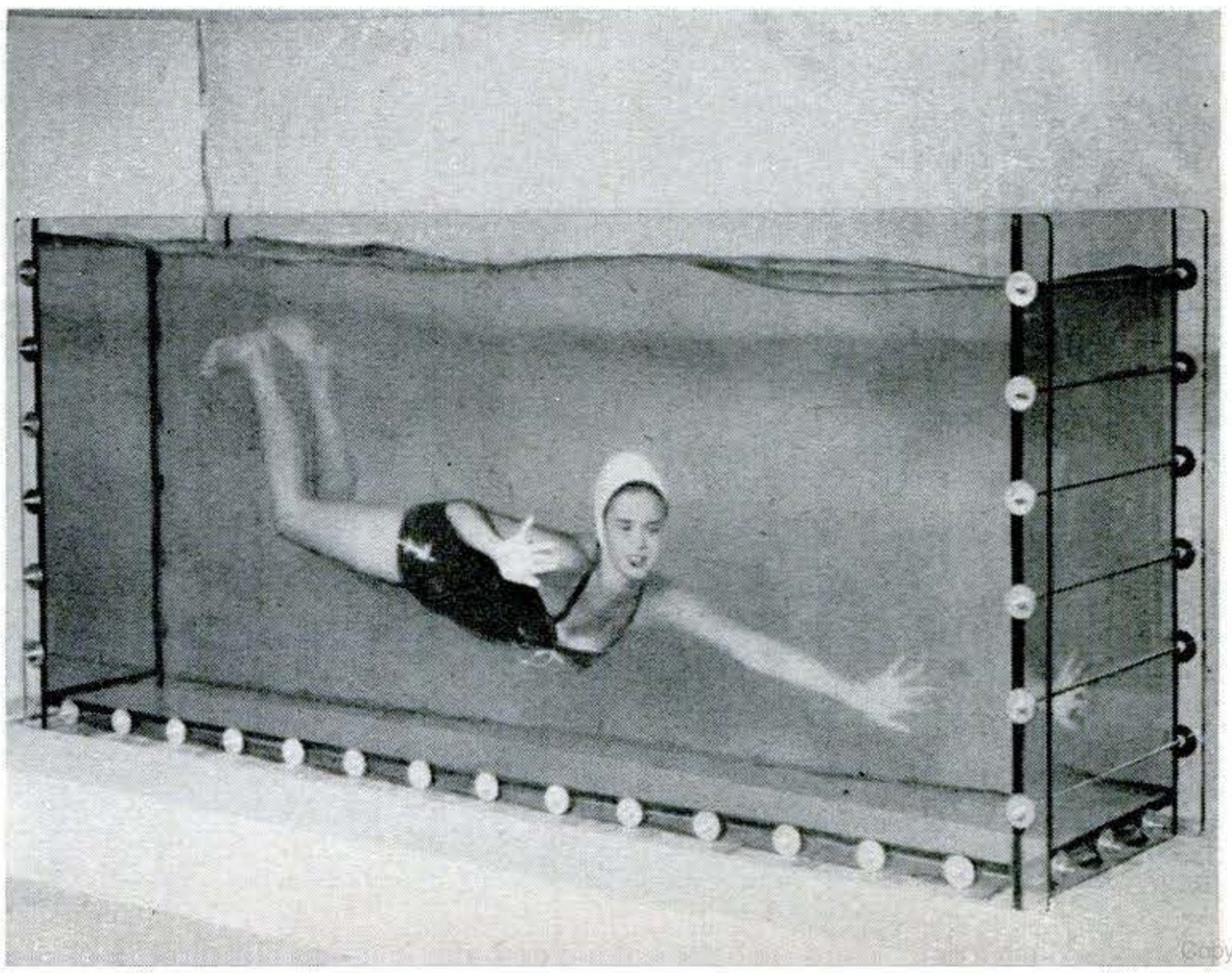




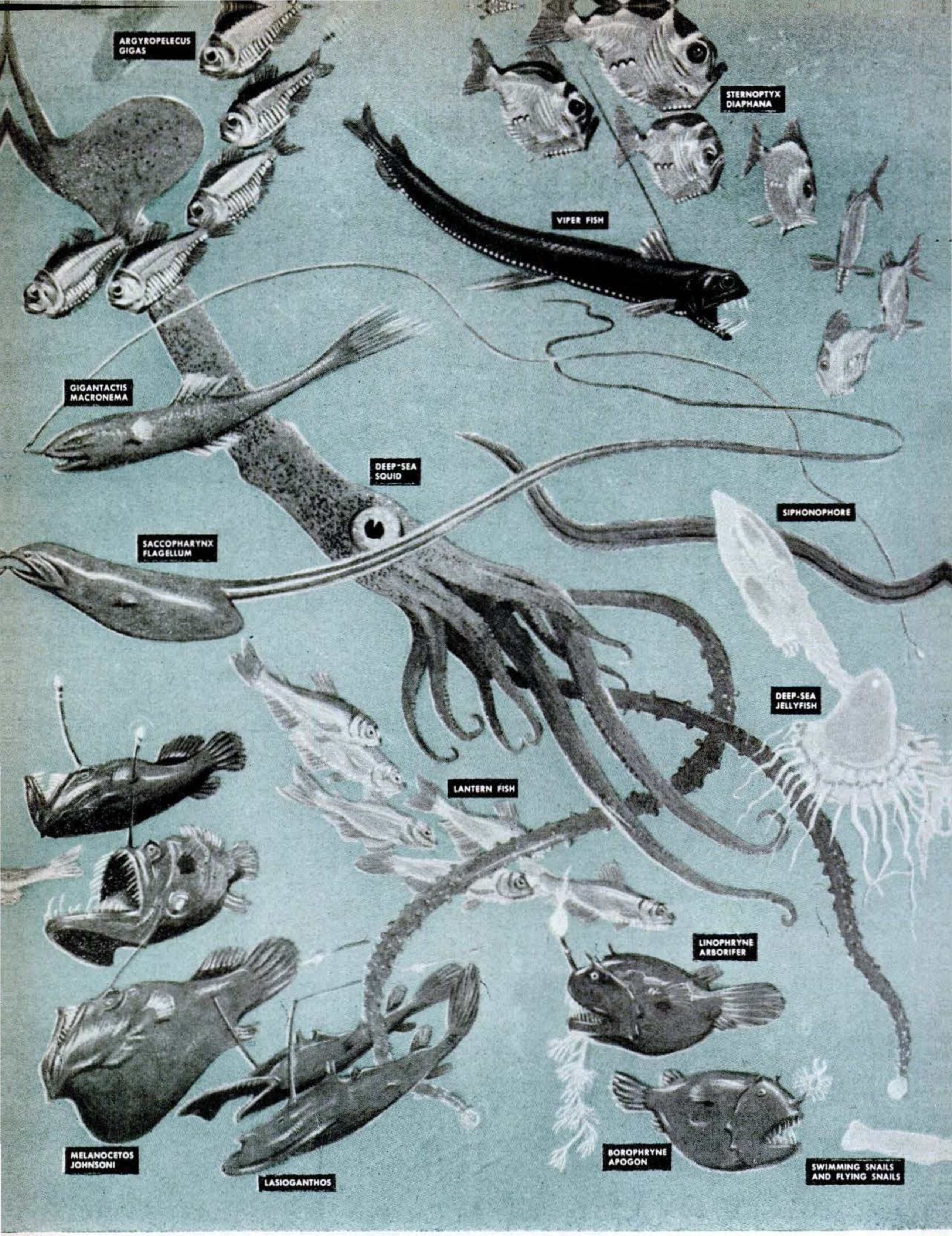
TO CHANGE REAR TIRE, you turn valve in trunk to "high" and hydraulic pressure depresses rear-wheel arms, raising body. An A-frame is placed to support the lifted body. With valve reversed, wheel arms return to near-horizontal position, raising the wheel from the ground on supported side. The same sequence lowers the wheel to the ground after tire change.

. . . This One's a Stand-In for Fish

MAKING like a fish, a mermaid shows off a nine-foot-long, 540-gallon tank for the Detroit Municipal Aquarium—"one of the largest free-standing all-glass tanks ever built," its maker, the Pittsburgh Plate Glass Co., says. Brass rods connect the sides and bottom of tank.

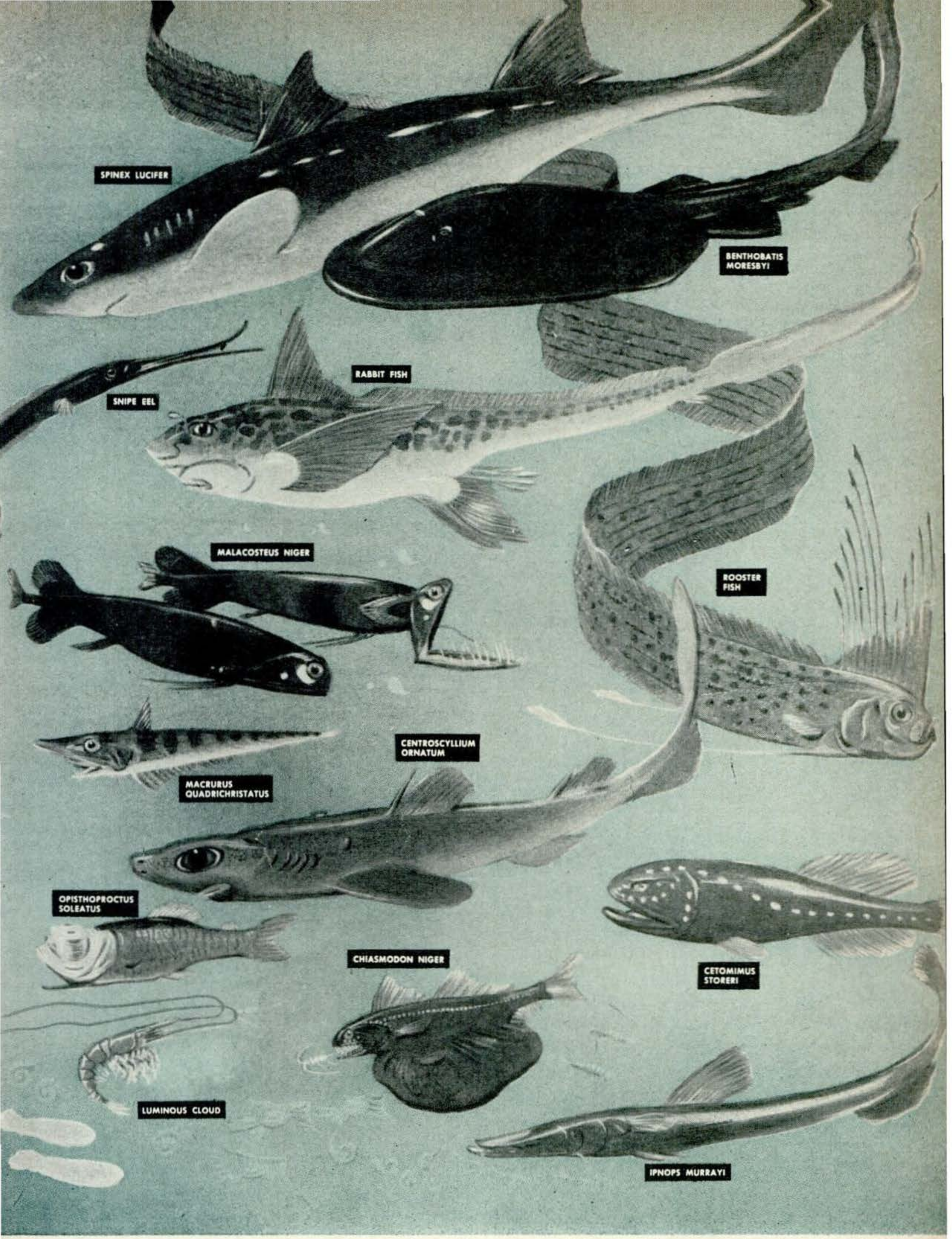


Copyrighted material



Putting a Searchlight on the Deep

Copyrighted material



STRANGE AND MENACING FORMS move through the inky black depths of the ocean. If man could reach these enormous depths, he'd see only points of light (white on the drawing) flashing around him. But a powerful searchlight would reveal these weird fish swimming by.

Please turn the page for more about deep-sea fish

Copyrighted material

Weird Fish Live on Ocean Bottom

LIKE creatures from another world, the fish that live in the great depths of the open sea resemble nothing you ever hooked in a country stream. Actually their home is another world, a strange place of tremendous pressures and eternal darkness. No man has ever been there.

Some of this grotesque deep-sea life, however, has been brought to the surface by nets and long lines, and scientists have deduced much about conditions miles down. The drawings on the preceding two pages, prepared by Neave Parker, a British artist, show many inhabitants of the ocean bottom.

Because of the blackness, most "abyssal" fish carry their own lights with them, usually in special luminous organs called photophores. Some, like *Melanocetos johnsoni* and *Linophryne arborifer,* have their lights on upright arms, like radio antennas with illuminated tips. (These names are the Latin scientific ones, since few deep-sea fish are caught often enough to acquire common names.) *Chiasmodon niger* and *Cetomimus storeri* have brilliant spots strung along their bodies, like lighted portholes on a ship. *Spinex lucifer,* a kind of shark, has tiny light organs grouped all over its body to create a uniform greenish glow.

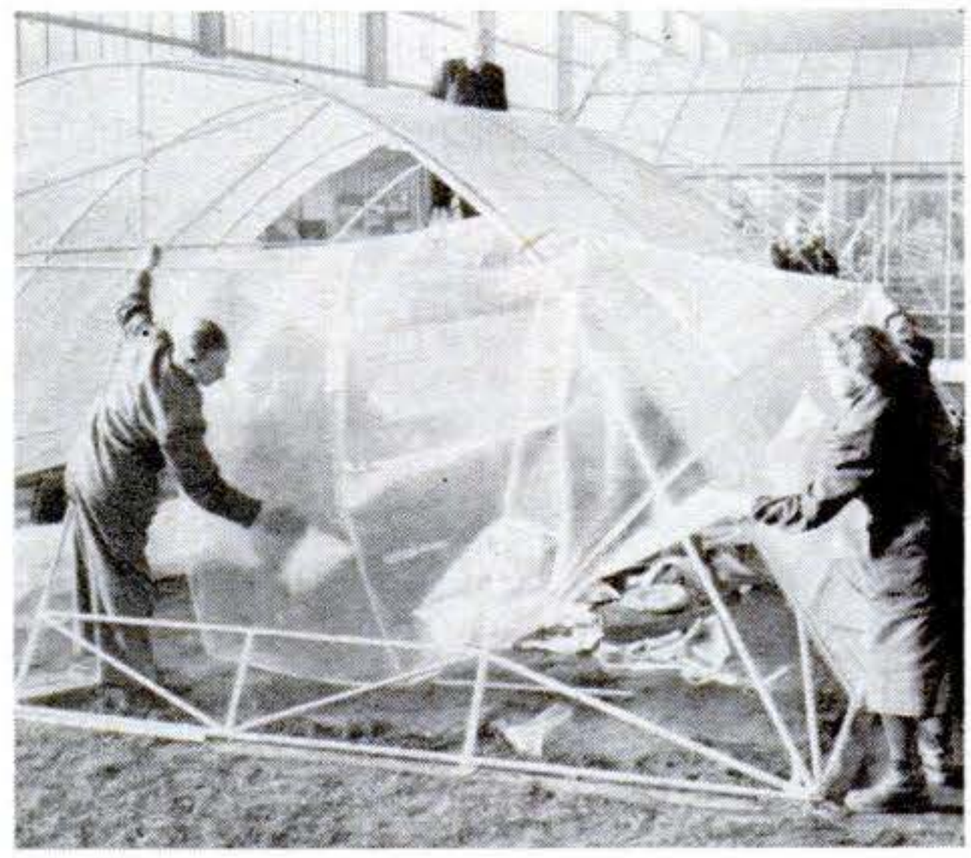
Other types of deep-sea fish have no special light organs, but still glow, either because they carry luminous bacteria on their skins or because they secrete a luminous slime.

A few varieties carry no light at all. These usually have very tiny eyes or, like *Ipnops murrayi,* no eyes. The unlighted fish are often colorless or the color of coastal fish, while the lighted fish are generally black.

Bizarre teeth and jaws, special feelers and expanding stomachs also mark many of the strange fish. One of these creatures is *Chiasmodon niger,* which can swallow other fish bigger than itself.

Modern Lamplighter in a Dam

KARL WEDEWARD, above, has a full-time job keeping the lamps burning at Grand Coulee Dam. There are 13,000 lamp sockets in 8½ miles of tunnelways and three huge buildings. Traveling four or five miles an hour on a motorized cart, he changes about 250 bulbs a day.



Plastic Hothouse Folds Up

THIS collapsible greenhouse, shown at a German agricultural exhibit, goes up in minutes. A metal framework covered with plastic sheeting, it weighs only 80 pounds but provides 190 square feet of planting space. The hothouse is also made in larger and smaller sizes by Apparatebau Ziegler, Konigsweg 40-41, Berlin-Zehlendorf, Germany.

Copyrighted material

CAR-ON-RAILS stops to get regular clearance form from towerman at Selkirk, N. Y., before proceeding east on main-line tracks.

Let's Go Driving On the Railroad

It looks crazy, but it's fun—and real handy if you're president of the N. Y. Central—to have an auto that rides on the tracks.

By Devon Francis

AT LEAST once each week since last fall, someone has telephoned the New York Central Railroad and said, "A crazy guy is driving a car along your right-of-way."

That's not the half of it. The guy not only is driving an automobile on the right-of-way, he's driving on the rails themselves, and at 60 miles an hour.

Every so often he wheels the car off the rails and goes highballing off cross-country on the highways as fast as the law will allow.

He's not crazy, though. He knows what he's doing.

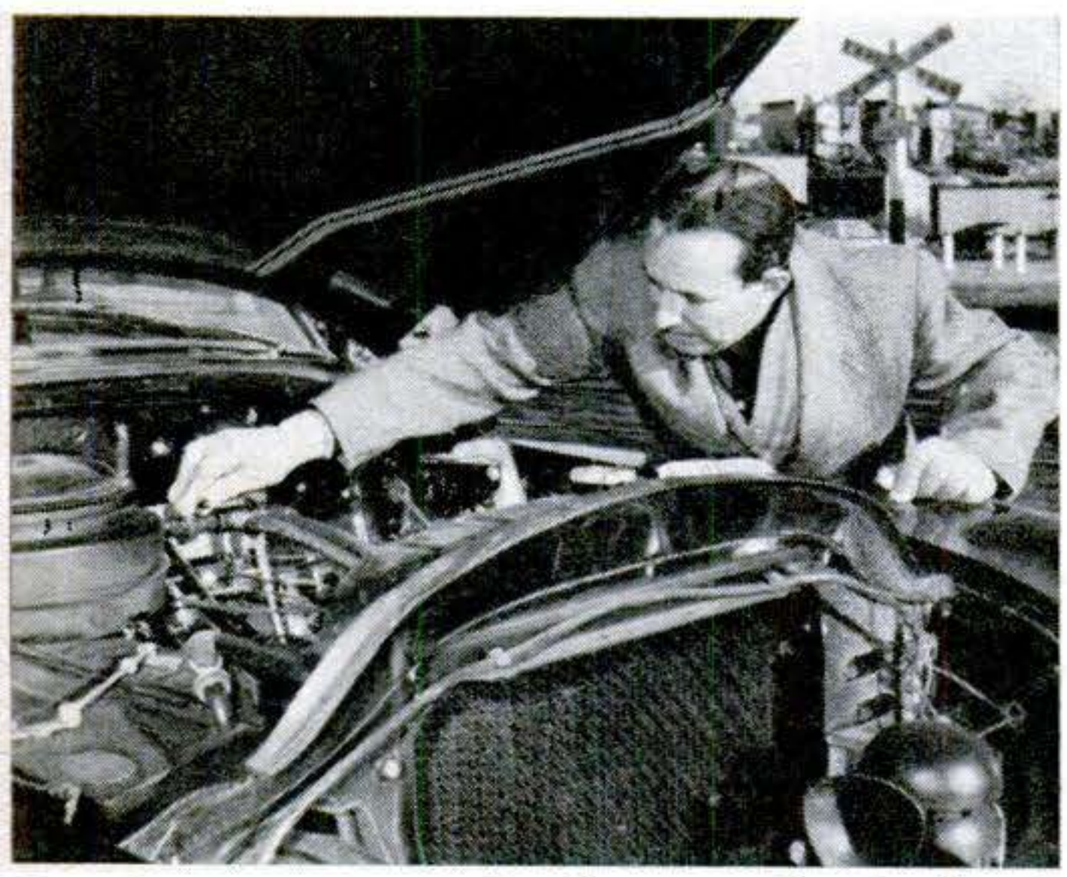
He's driving a specially equipped seven-passenger sedan known unromantically as "100." It's the personal inspection automobile of Alfred E. Perlman, new president of the road. It rides the rails on four rubber tires plus four flanged, steel-shod wheels. The flanged wheels

Watching a fast freight bear down on you on an adjoining track can be unnerving at first.

Copyrighted material

First, it's backed onto rails at crossing.

It's aligned, so flanged wheels can drop.



Turning pressure valve lowers wheels . . .

. . . until they engage rails, fore and aft.

Car can be put on rails in two minutes, or taken off in one

go up, at the turn of a valve, for conversion to road travel.

It may be crazy, but it's a handy vehicle. It can be driven from the highway onto the rails, and from rails to highway, any place that there is a grade crossing. The tops of the rails must be flush with the road to effect the change-over.

The car makes inspection trips fast, simple and—mark you this—sheer fun. A man can see everything at a glance through the windshield and side windows.

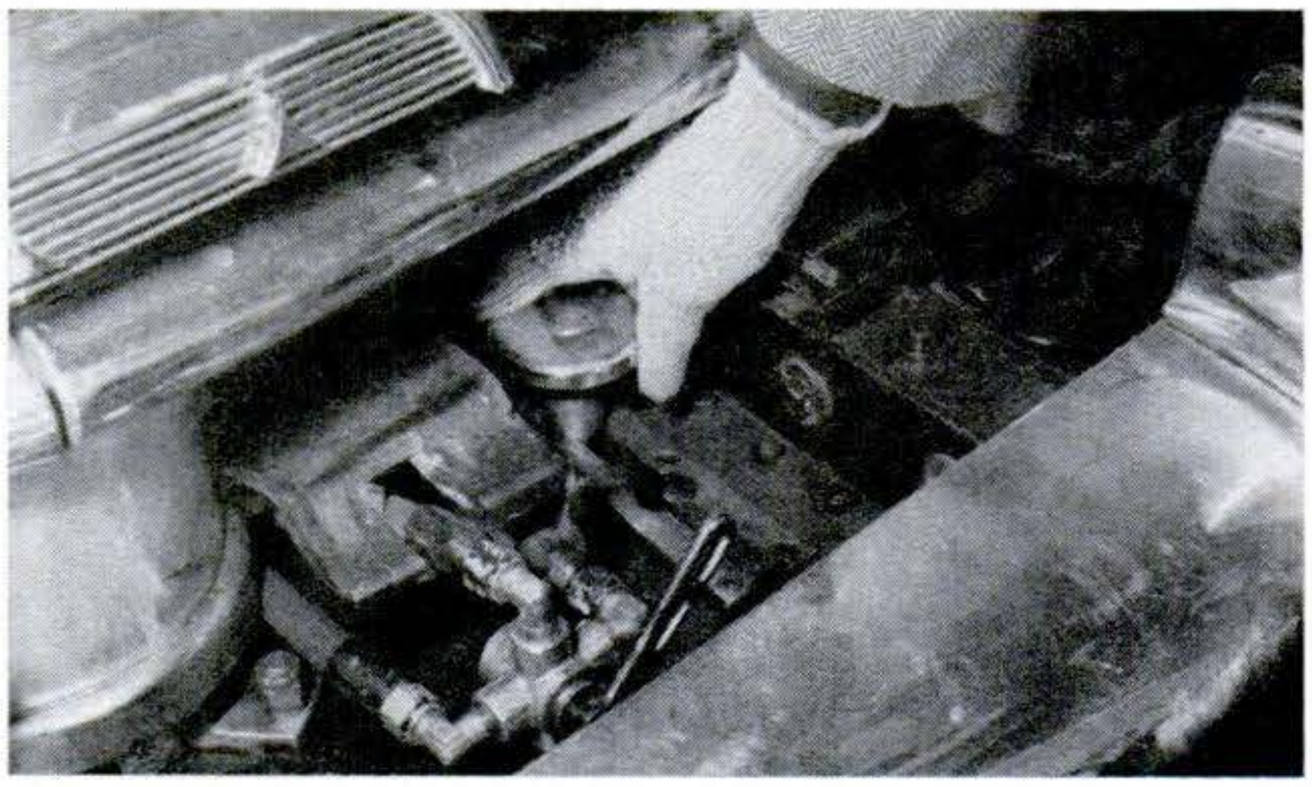
So far as scheduling is concerned, the Central's "100"—a modified 1954 Chrysler Windsor—operates strictly as a railroad train. It shuttles back and forth on the double- and four-tracked main line working on standard yellow "flimsies," or train orders.

"Number 38 is behind you," the towerman will say as he hands the driver his orders. "You've got 22 minutes' clearance to Peekskill."

Approaching a signal gantry, an assistant calls out, "Red!"

"Red on the board," responds the driver.

He takes his foot off the accelerator and lets the car coast until the tower gives him a green. Now and then he has to touch the brake to keep from overrunning the signal before it turns. In automatic-signal territory, the car has to come to a full stop in front of a signal—



Wheels lock in place with a steel shoe . . .

Copyrighted material

RAIL CAR causes gates to drop and warning lights to flash as it approaches crossing. It carries its own warning system for less versatile vehicles—air horns front and rear.

it's not heavy enough to make the contact while rolling.

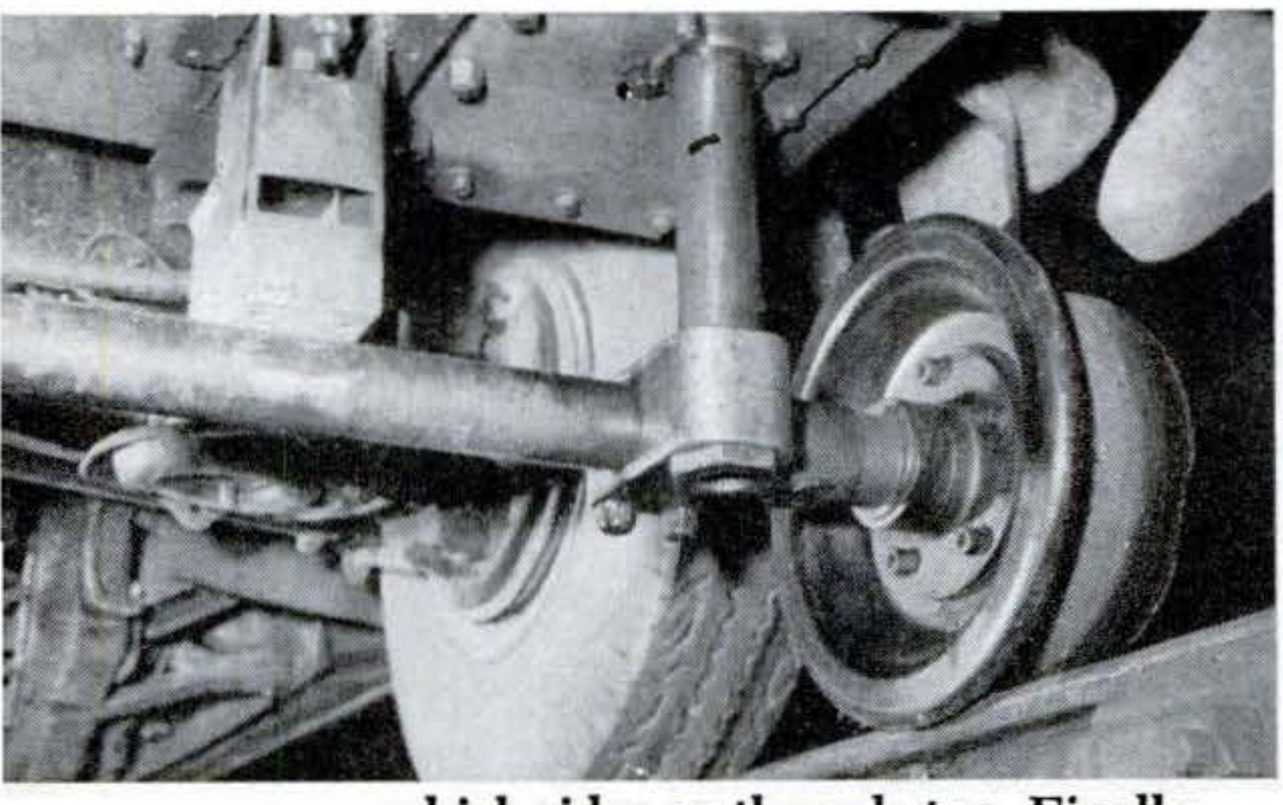
On the roof the car carries two red "marker" lights facing rearward and four amber caution lights forward. Above them is a red blinker. Standard automobile headlights bathe the track at night. Hand signal lamps, torpedoes and other regulation paraphernalia are carried in the trunk.

The car toots twice to go ahead, three times to back up, and gives forth lustily with two longs, a short and a long as it approaches a grade crossing.

Everywhere the car is driven, it attracts crowds.

"Hey!" exclaimed an enchanted upstate New York automobile dealer. "How can I get some cars like this? I could sell a thousand."

It attracts the cops, too. Soon after "100" was put in service last October,



. . . which rides on the axle top. Finally . . .

. . . a prong locks spoke of steering wheel.

Copyrighted material

With its flanged wheels tucked up, rail car joins mid-town traffic stream as a roadable sedan.

a police prowl car panted after it clear through the city of Troy, N. Y., to find out what kind of fool would be driving a car on the railroad tracks.

While it's driven by railroad brass, the master sergeant, so to speak, in charge of it is a reticent and gifted man named Lou Diffenbeck. Lou is an expert mechanic. They say of Lou that he can sit and listen to the beefs about an ailing diesel-electric locomotive, and nine times out of 10 diagnose the trouble without moving out of his chair.

Lou services "100." It's only a sideline with him, an added chore. It doesn't give him much trouble. His repairs usually consist of replacing things that get knocked off the undercarriage of the car. It's a ton and a quarter overweight, what with the special equipment needed to operate it, and despite hard springing, it "bottoms" on bumps.

Lou had a little transmission trouble when "100" went into service. Part of the drive—a standard Chrysler automatic—burned out when the car was backed up at 45 miles an hour. Examination showed that it wasn't the speed that was at fault but, instead, a bad installation. Nonetheless, "100" ever since has been placarded for a maximum of 15 miles an hour in reverse.

Normal servicing is no problem. Lou simply drives the car over one of the pits at the Central's roundhouse in Selkirk, N. Y.

It would be abusing the truth to say that "100" rides like a dream. Driver and passengers feel the hard suspension—necessitated by the extra weight—on both highway and rails. But that's forgotten in the zany, and occasionally unnerving, experience of hurtling down a railroad track in an automobile at a mile a minute.

A tidy bit of work had to be done to the six-cylinder Chrysler to convert it to off-and-on rail use. An air compressor was installed under the hood to raise and lower the flanged wheels.

The pneumatic system is the same kind used for air-braking trucks. A reservoir two feet long and six inches in diameter, located under the car on the driver's side, stores the compressed air. When a pressure of 100 pounds to the square inch is reached, the compressor is stopped by unloader valves.

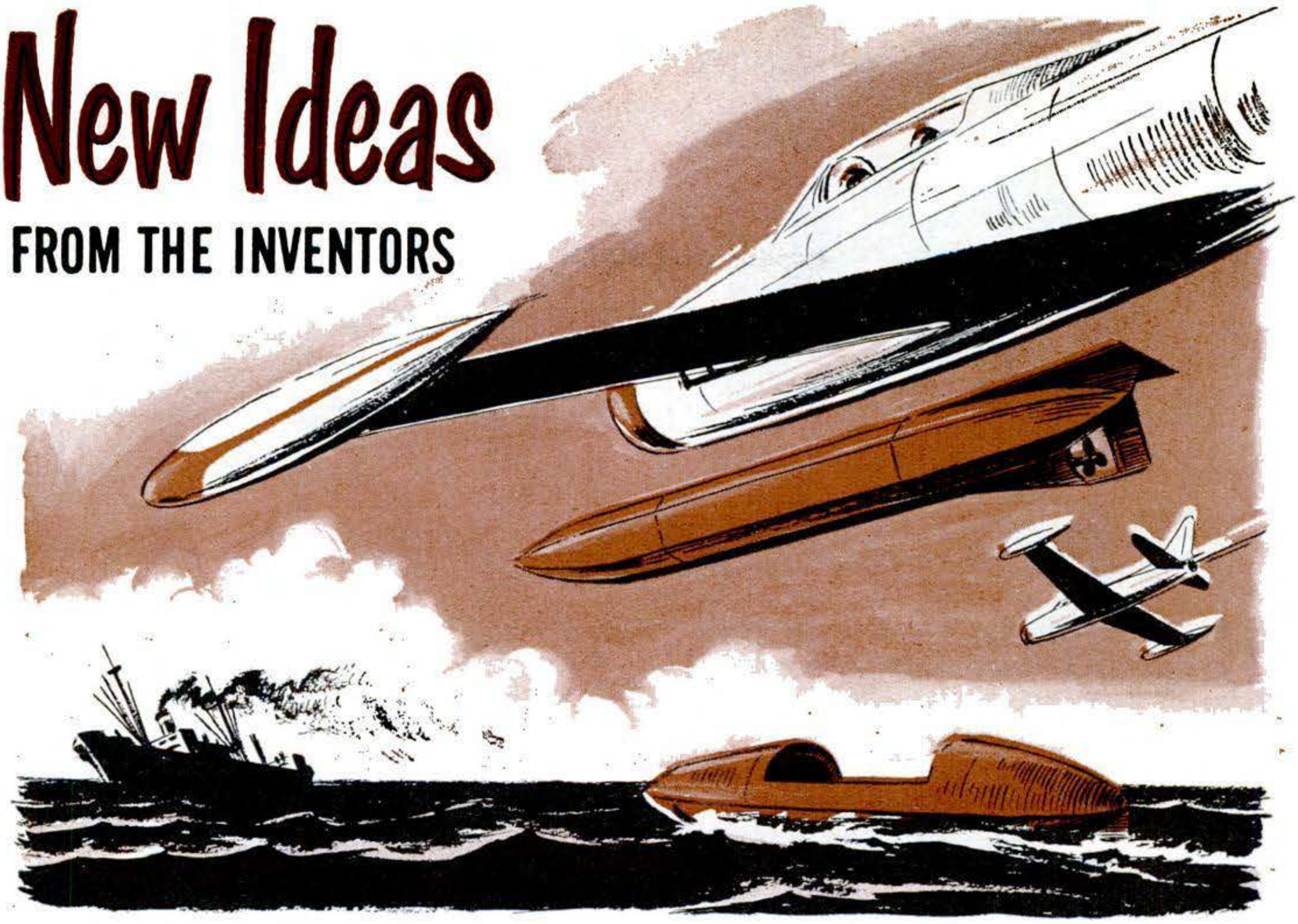
The air is piped to a distribution "header," and thence into lines leading to cylinders at the front and rear of the car. Valved into the bottoms or tops of the cylinders, it forces a piston up or

[Continued on page 260]

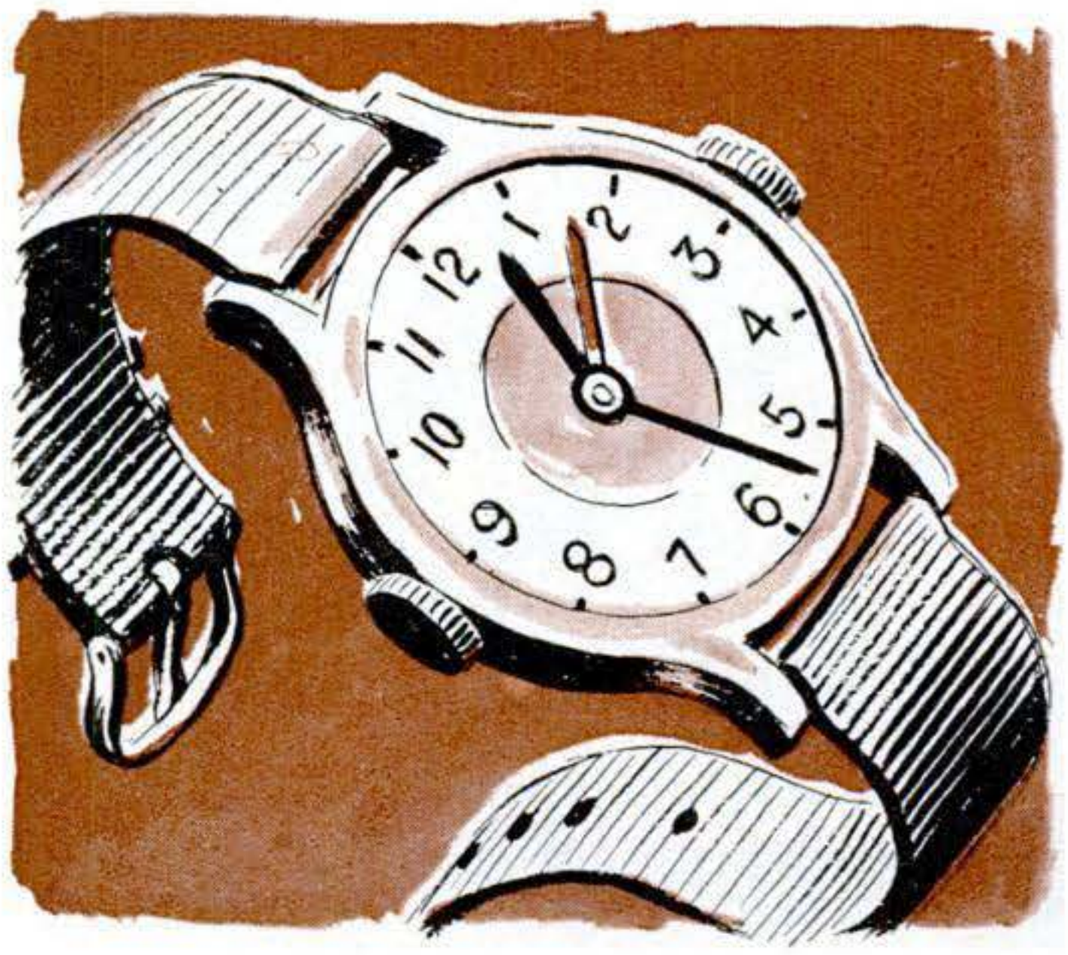
Copyrighted material

New Ideas

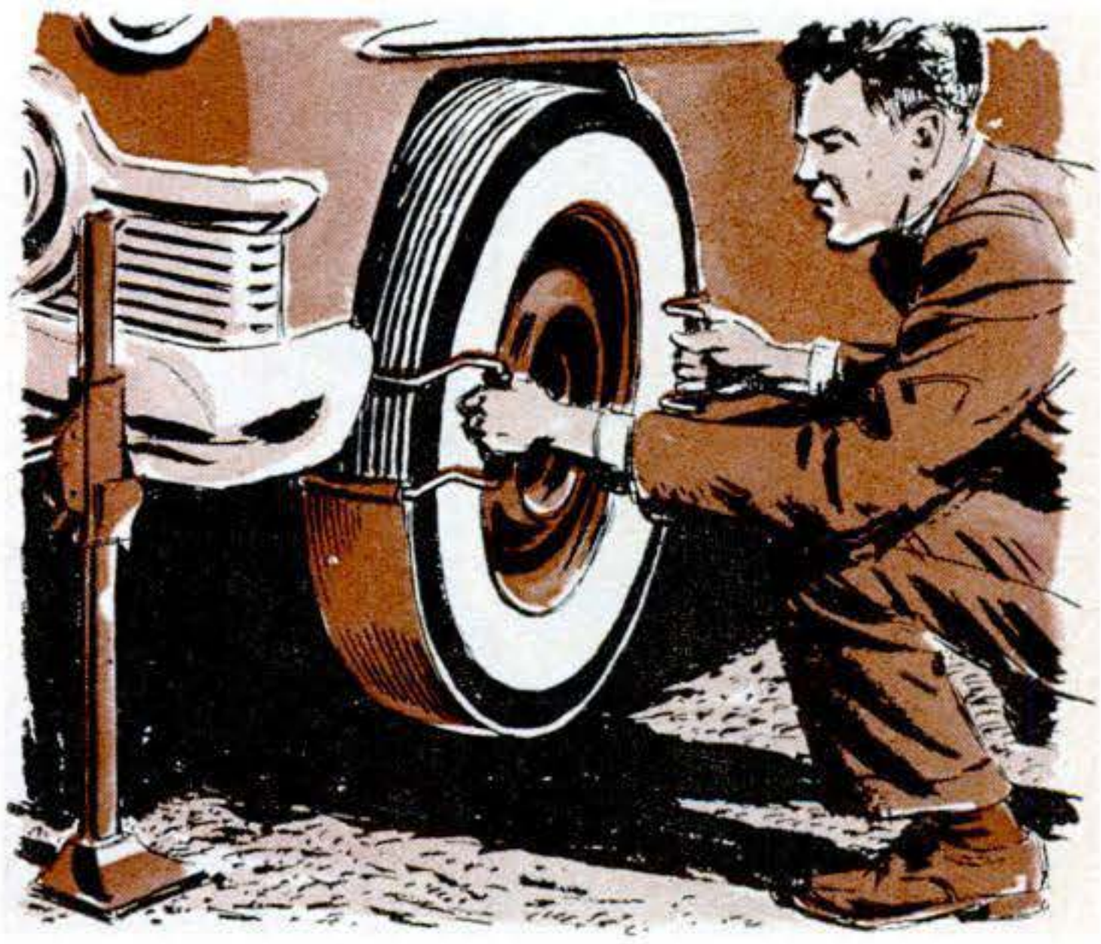
FROM THE INVENTORS



1 "Torpedo" to Launch Rescue Boat. Foundering survivors of a ship or plane wreck might stand a better chance of rescue if lifeboats could be aimed right at them by low-flying planes. Folded into bomblike projectiles, several of these boats could be carried under the wings or in the bomb bay of a plane and dropped accurately on target. Compressed gas would inflate and unfold the "bombs" into seaworthy craft.



2 Three-Handed Watch to Aid Travel. Commuters who go to work by Daylight Saving Time but have to catch trains on Standard timetables would find this three-handed watch, showing both, a help in keeping track of their schedules. Other travelers who cross time zones could also use it to avoid confusion.

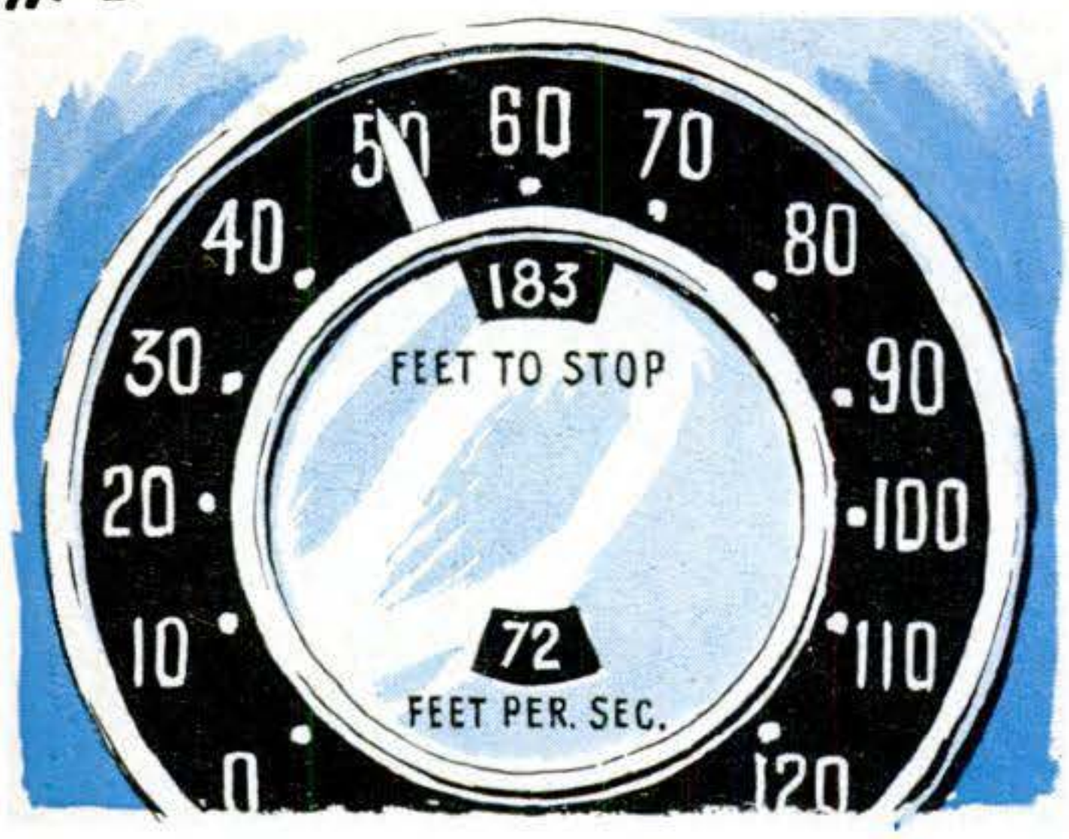


3 Tire Grip to Keep Hands Clean. Changing a tire would not be as dirty—or backbreaking—a job if you could get a good grip on a wheel without actually touching it. This wheel-lifting cradle, consisting of two handles attached to a flexible metal band, would make it easier for you to balance, raise, lower or carry a tire.

Please turn the page for more new ideas

Copyrighted material

MORE New Ideas from the Inventors



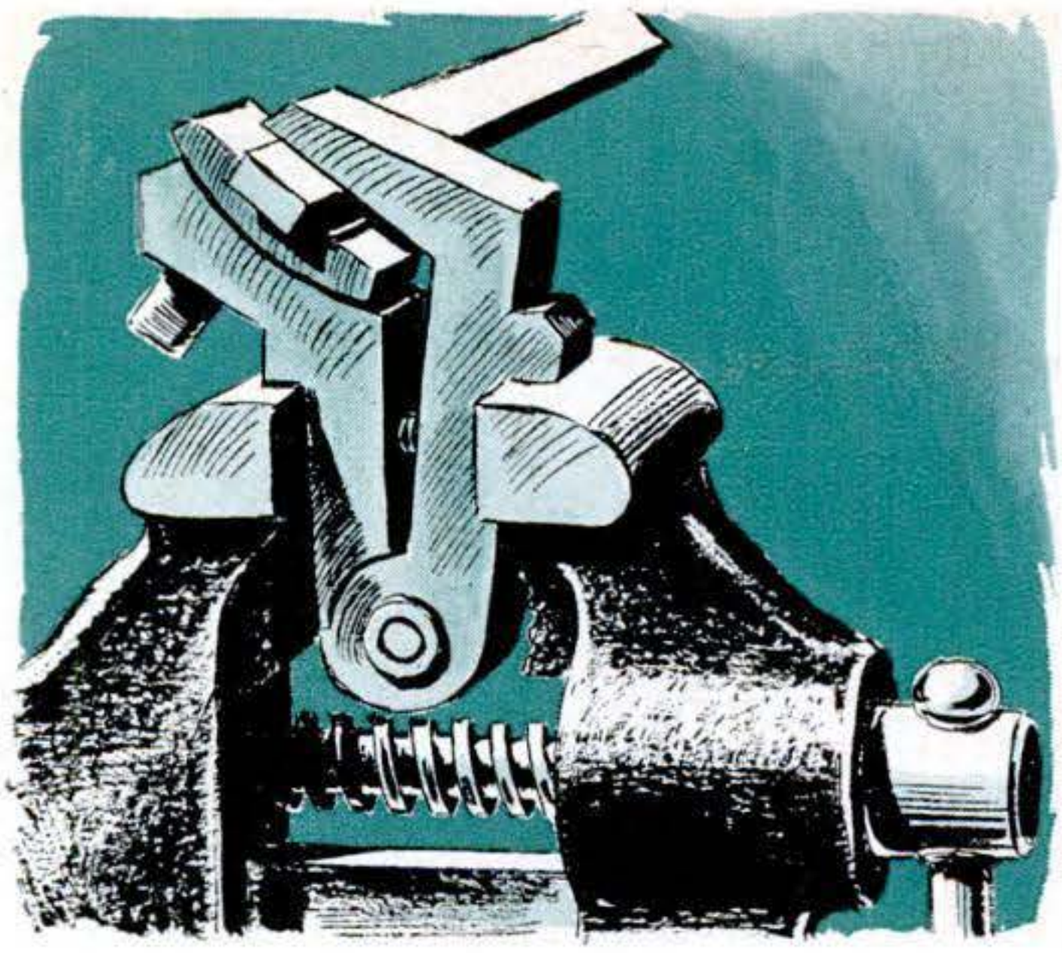
4 Meter to Show Stopping Distance. Believing that many accidents happen because drivers fail to relate their road speed to unseen hazards ahead, this inventor would add auxiliary, foot-calibrated scales to a speedometer. They would translate speed into feet per second and show the safe stopping distance at any speed.

5 Electricity to Spark a Lighter. This flameless pocket lighter would use an electric heating coil like that in a car lighter to set your cigarettes aglow. It would be powered by a pair of miniature dry cells. A plunger would switch the coil on when the lid was raised, turn it off when the cap was snapped shut again.

6 Two-Way Flash to Light Note Pad. Watchmen, guards, railroad checkers and others who have to make accurate written records outdoors usually have their hands full trying to read and write by the same light. This two-way flash would ease their task by casting one beam forward and another back over the note pad at the same time. A clamp at the back of the light would support paper in writing position. A transparent plastic hood would keep sheets and pencil dry in wet weather.

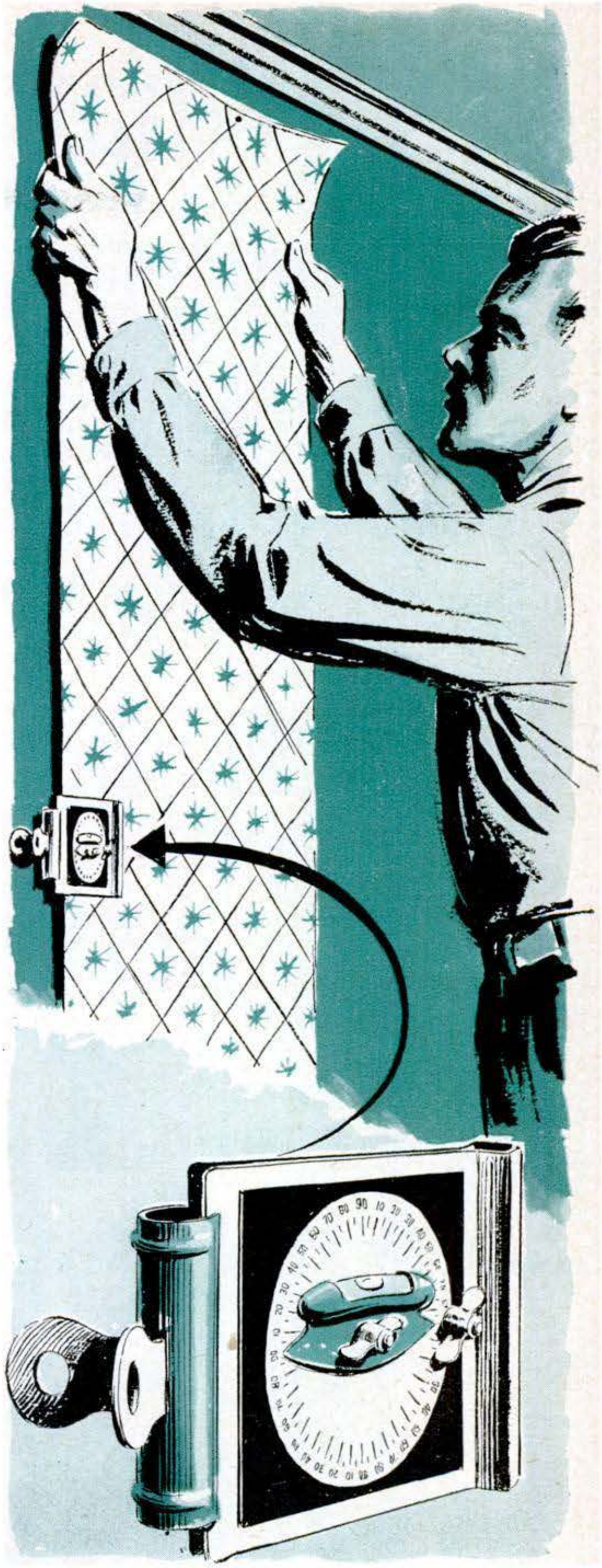
U.S. patents on these inventions have been granted to: 1. L. McCarty Jr. and H. Felio, NYC; 2. R. Israel, Corte Madera, Calif.; 3. J. Scuderi, Brooklyn, N.Y.; 4. N. Roderman, Los Angeles; 5. A. Tooker Jr., Valentine, Nebr.; 6. A. Littrell, Kennewick, Wash.; 7. C. Petersen, Brooklyn, N.Y.; 8. E. Wolper, Chicago; 9. C. Anderson, St. Charles, Ill.

Copyrighted material



7 Vise to Fit in Vise. This "Vise Jockey," as it is called by its inventor, would adapt any large vise to hold small work. Shoulders on the pivoted arms would seat the clamp securely in the jaws of a conventional vise. And its own adjustable, self-aligning jaw would provide maximum grip for pieces of different size or shape.

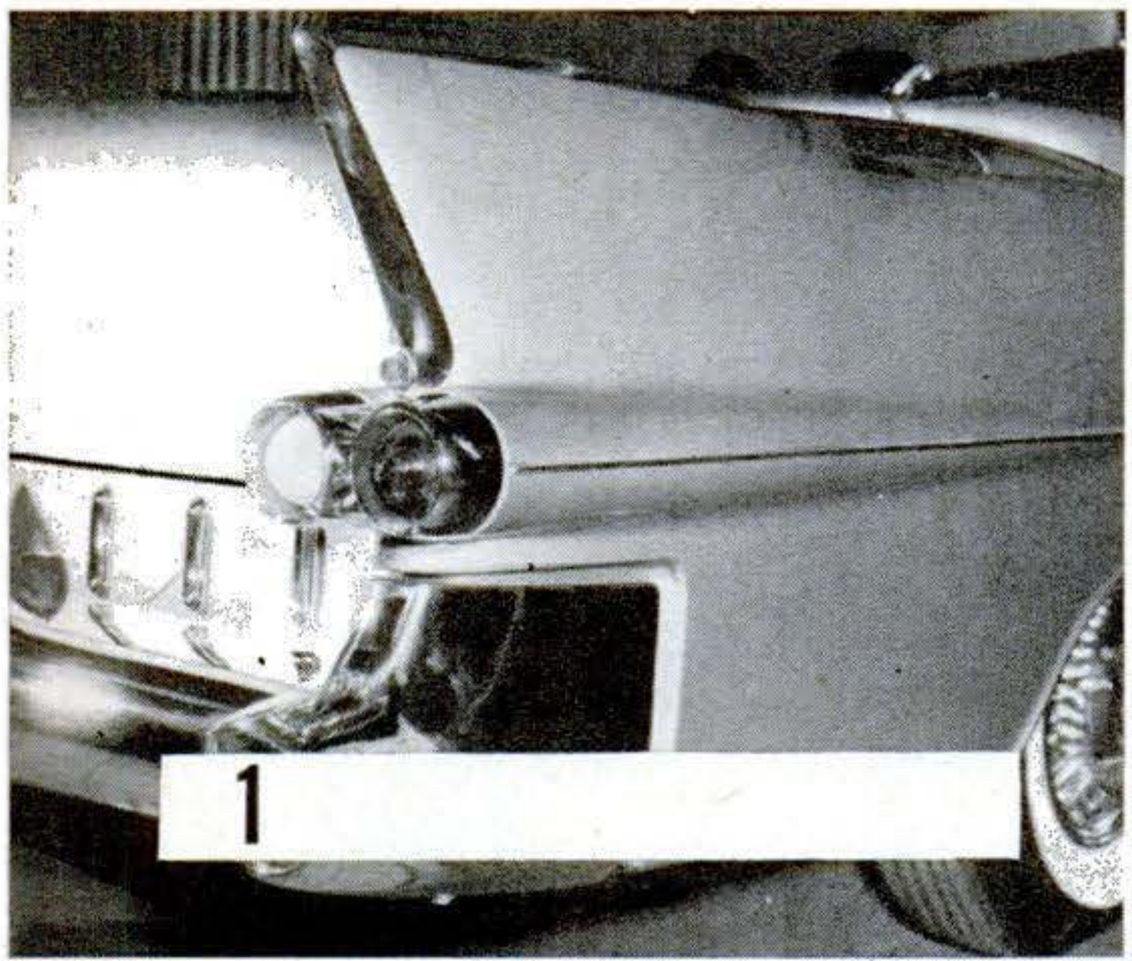
8 Flasher to Work Off Lighter. By flashing its beacon on and off, this auto accessory would provide hard-to-miss warning of a stalled car. A plug at one end of its extension cord would fit the dash-lighter outlet. A suction cup would permit easy attachment of the signal to any convenient, prominent part of the car.

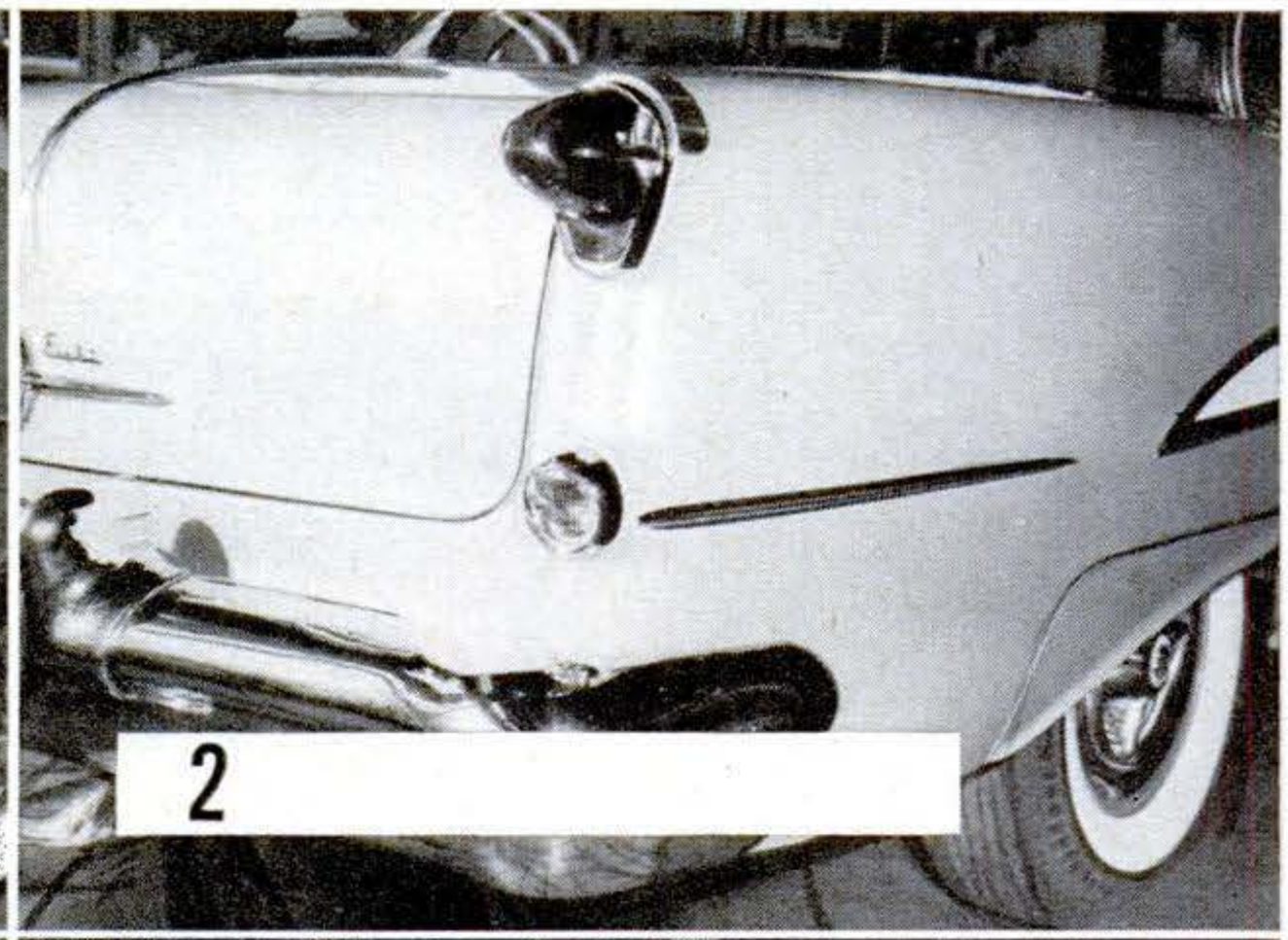


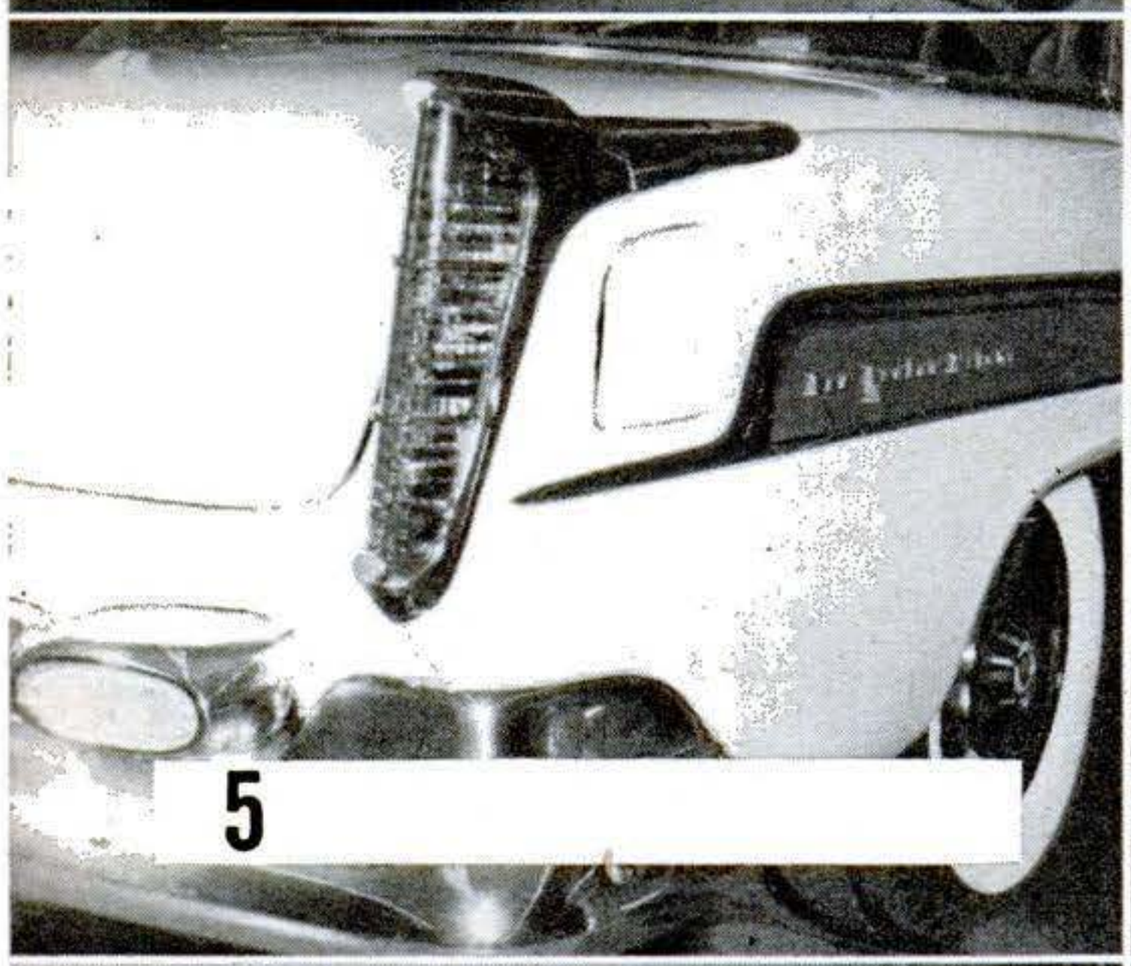
9 Dial to Line Up Wallpaper. A clip-on spirit level and angle computer might simplify the job of plumbing wallpaper. If this attachment were clipped to the edge of a sheet (or to a pipe or piece of structural timber), the bubble would tell when it was vertical. The level could also be rotated on a scale to measure angle of tilt.

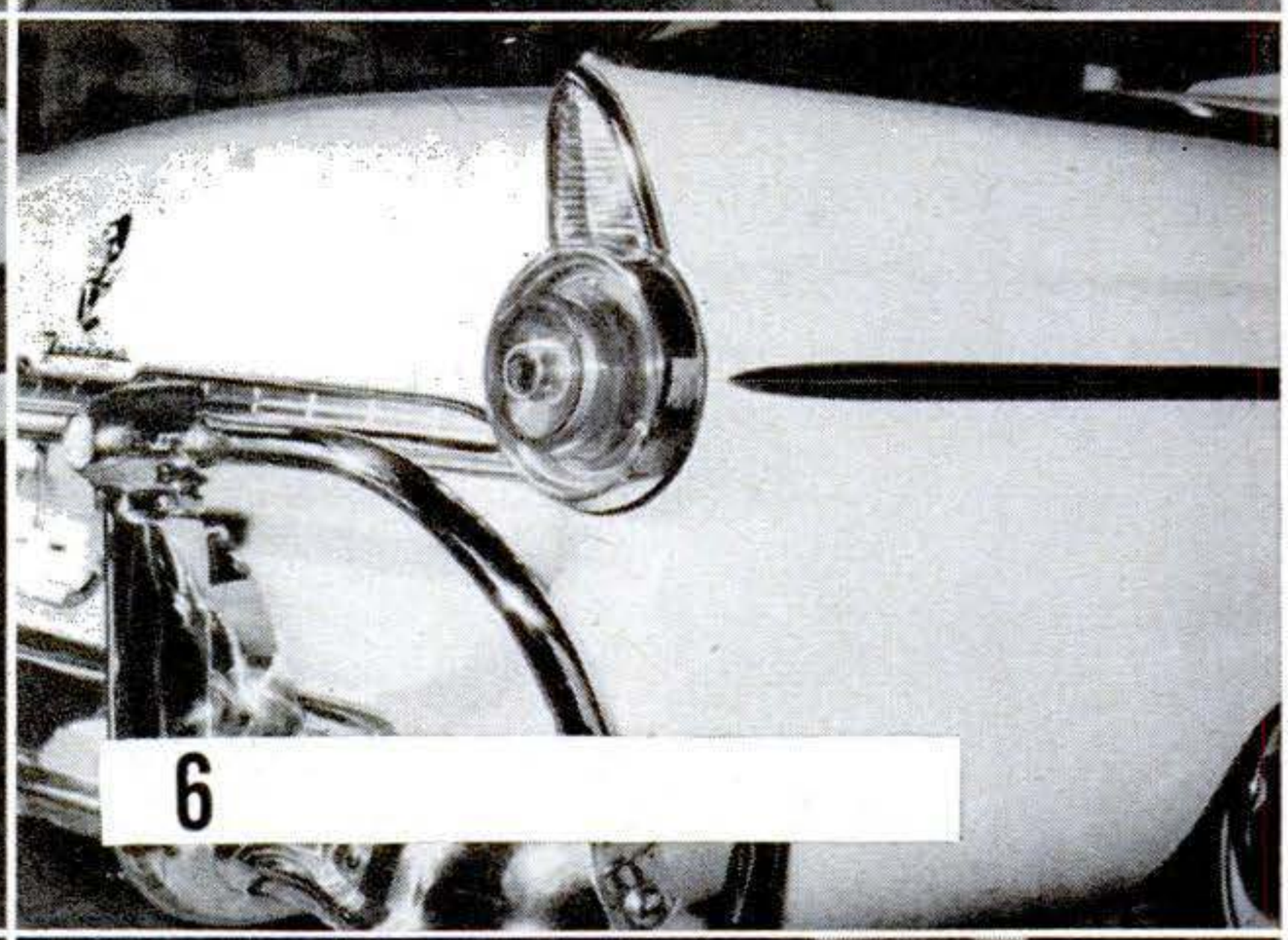
Copyrighted material

What New Car Just







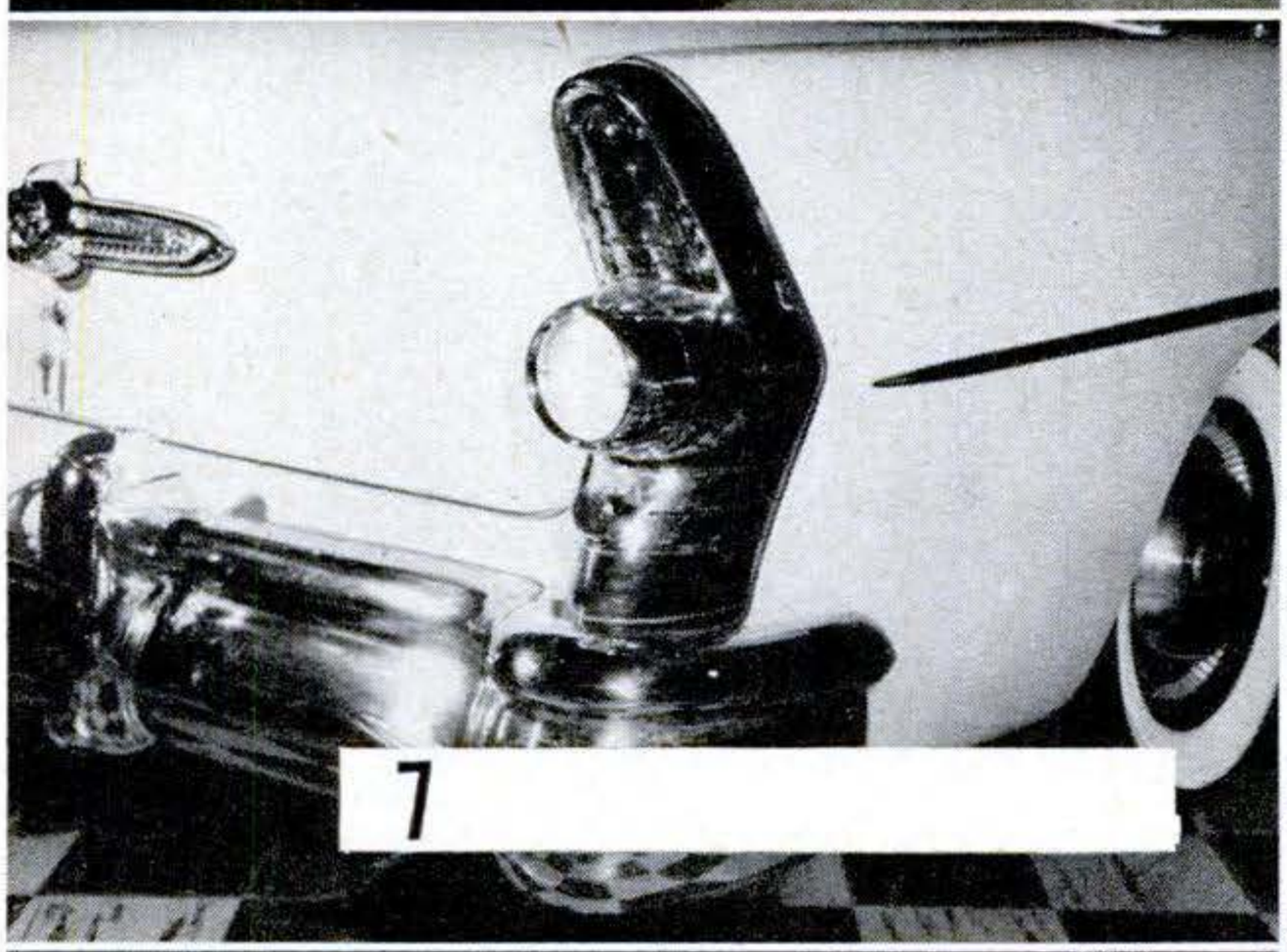


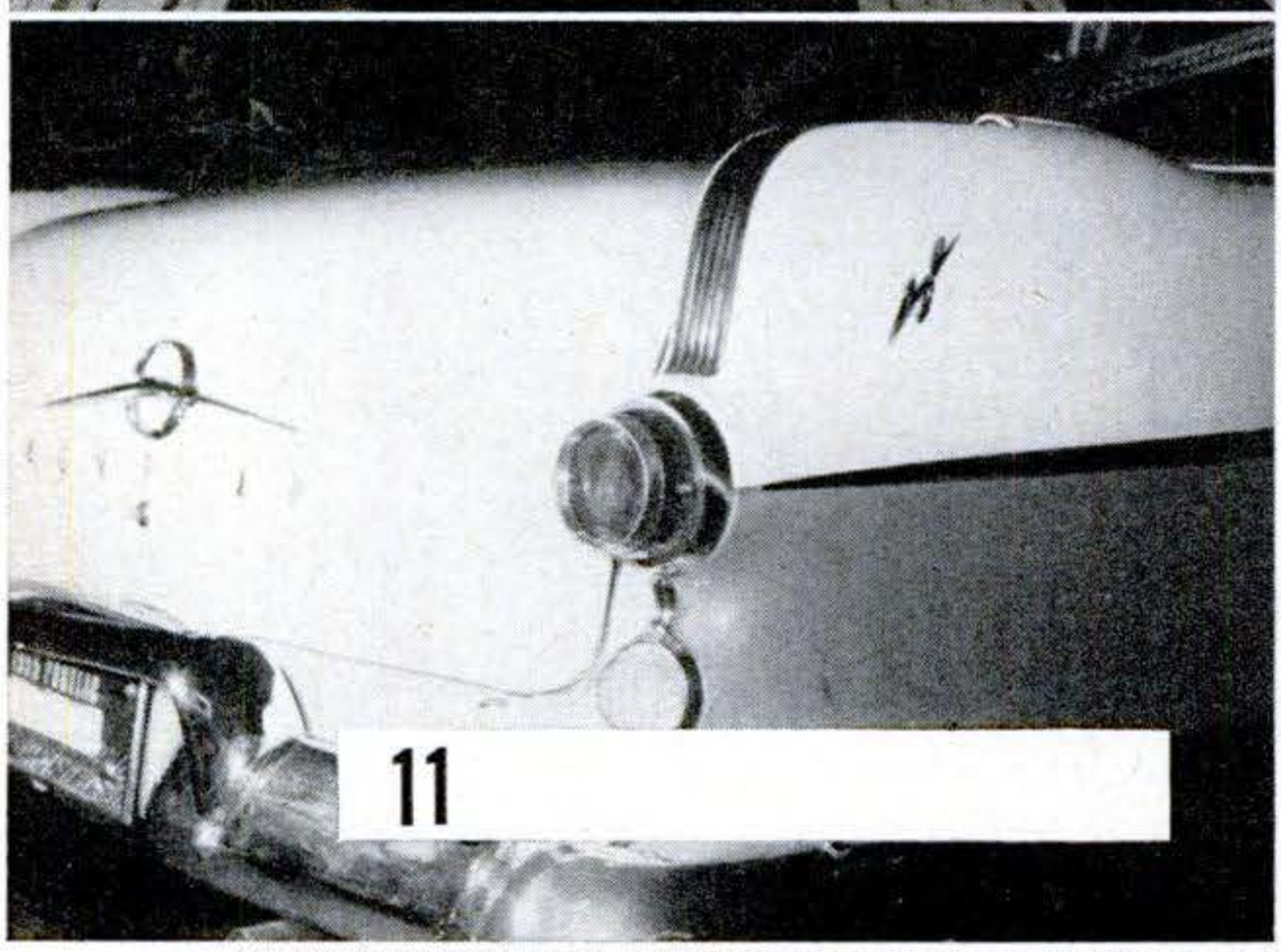
5. Chrysler; 6. Ford; 7. Buick; 8. Cadillac; 9. De Soto; 10. Dodge; 11. Pontiac; 12. Mercury.

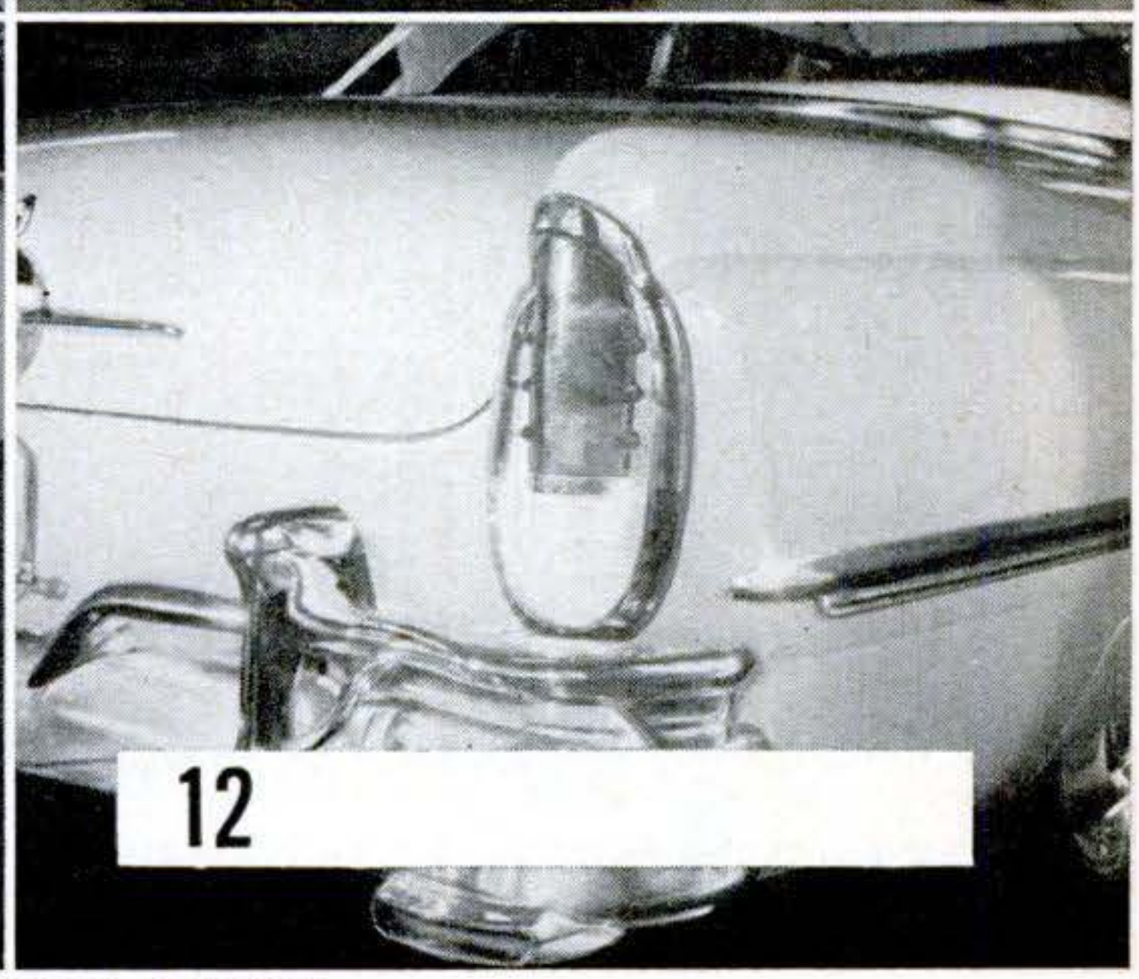
Copyrighted material

Passed You?

BY NOW, you've seen all the 1955 cars. But how sharp were your eyes as you strolled through the showrooms—or thumbed through recent issues of PSM? Try to identify the make shown in each of these close-ups. Then check with the answers at the bottom.







Answers: 1. Cadillac Eldorado; 2. Oldsmobile; 3. Chrysler's Imperial; 4. Plymouth;

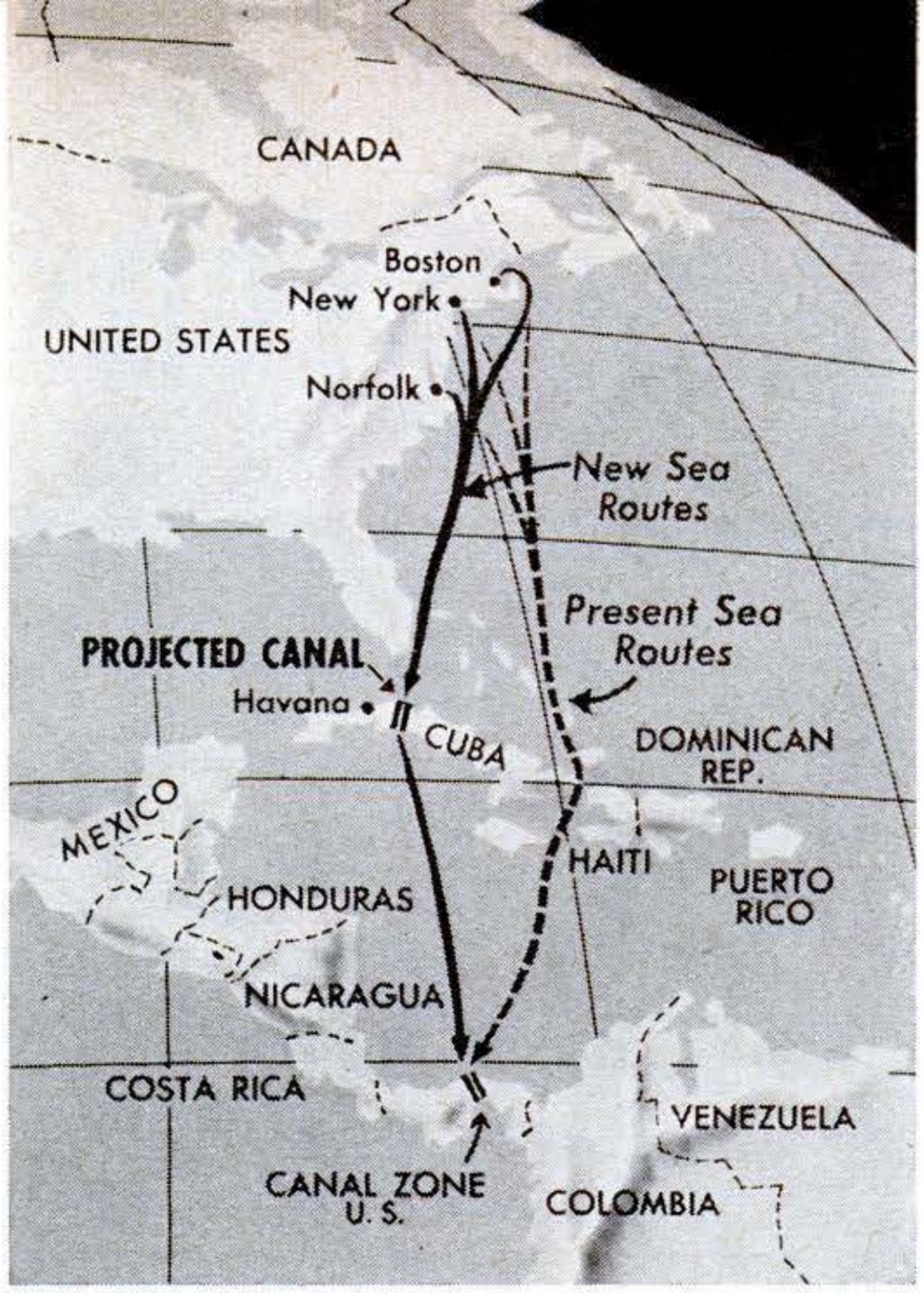
Copyrighted material

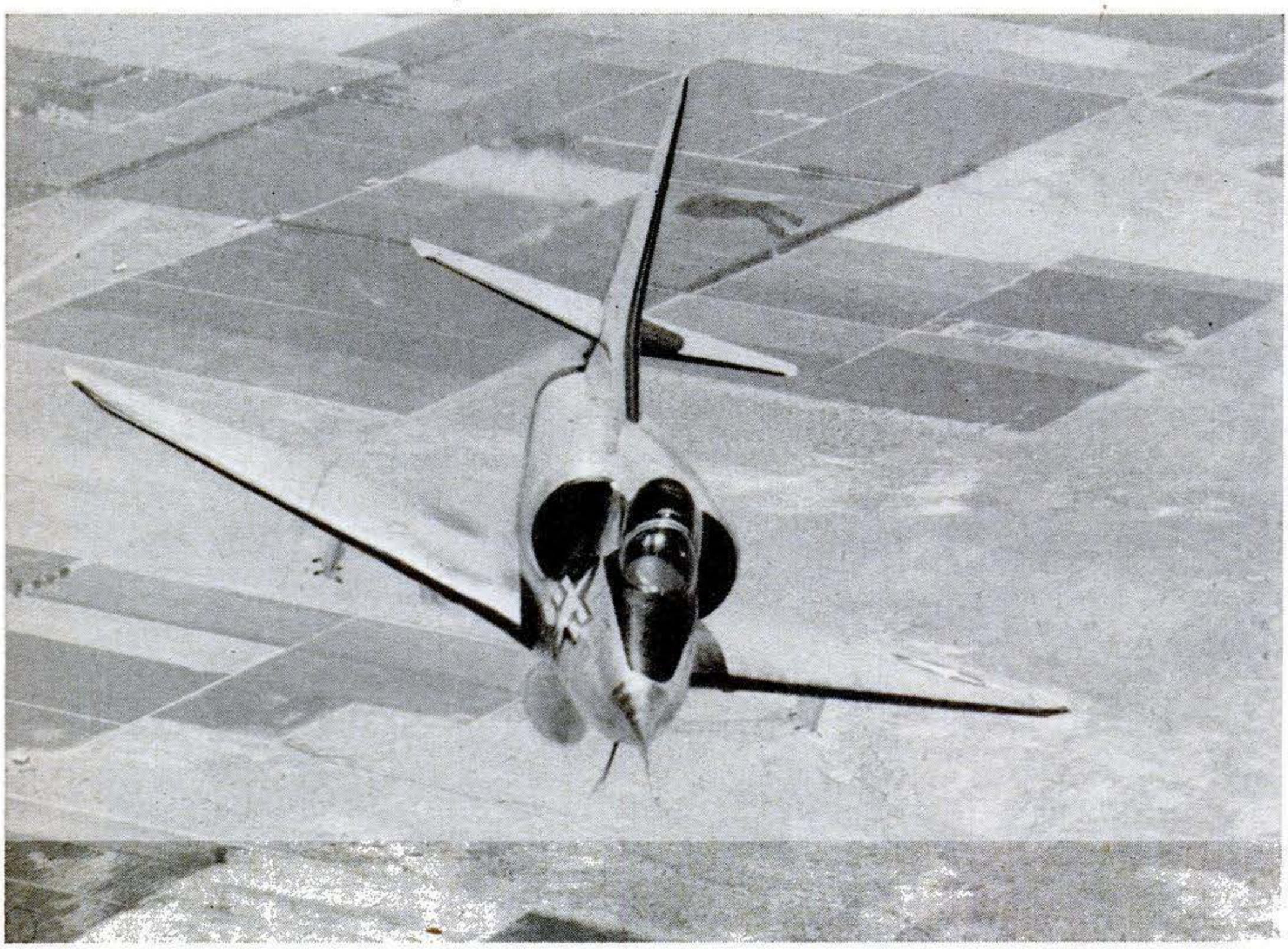
Ships to Sail Across Cuba as Canal Opens New Sea Routes

THE century-old dream of a trans-Cuba canal for ocean-going vessels seems about to come true. Granted a government concession to dig the 54.3-mile waterway, longer than the Panama Canal, a Cuban company foresees its completion in four years. U. S. engineers engaged by the firm are currently conducting a final one-year planning survey.

Benefiting Western Hemisphere trade and defense, the Cuba Canal would open new sea routes (map). It would also tap the rich resources of Cuba's interior, where ships could reach sugar mills and take aboard their product in bulk.

The $150,000,000 canal, a two-way sea-level waterway, would require no costly locks. It would have a channel at least 170 feet wide and of 48-foot depth, ample for deep-sea shipping.





Tiny Carrier Plane for U. S. Navy Packs Atom-Bomb Wallop

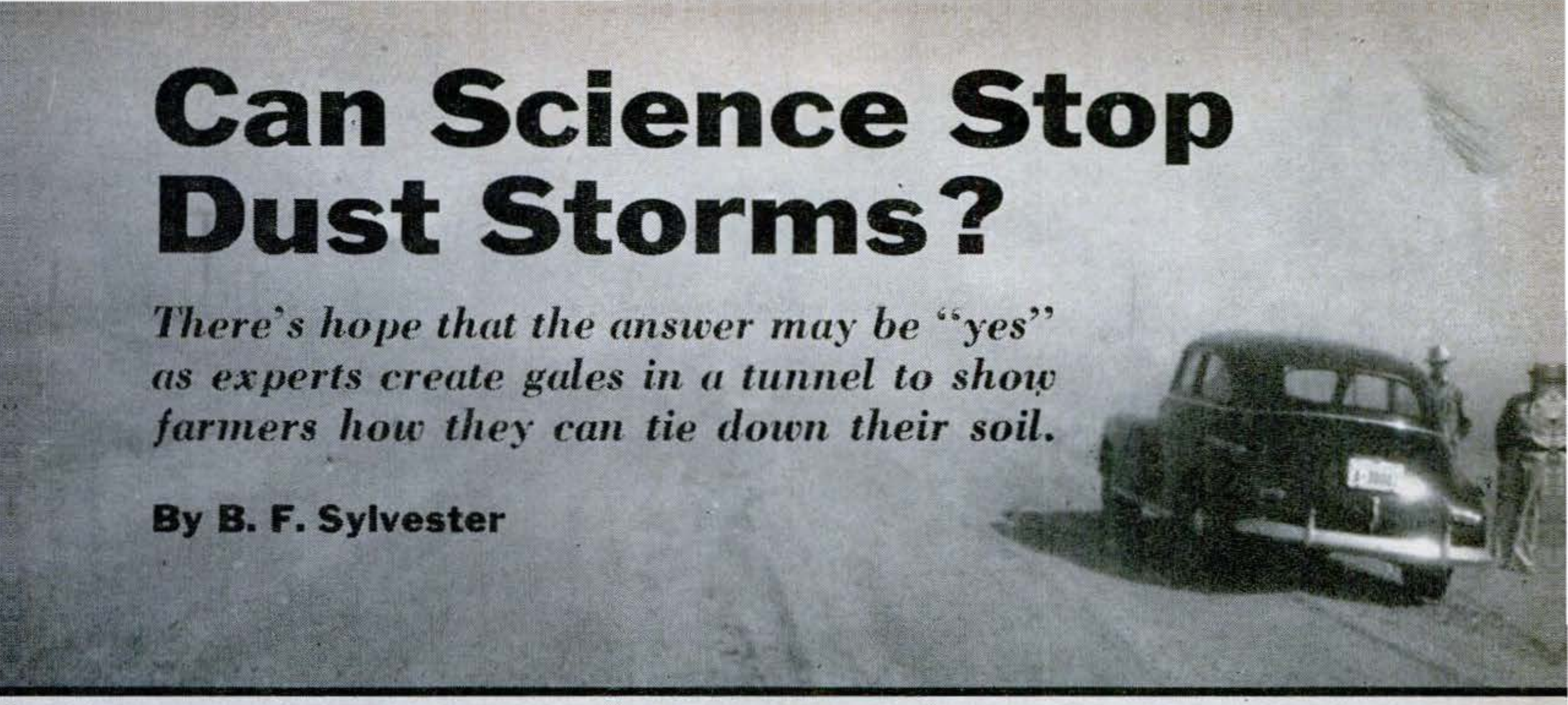
SO SMALL that folding wings aren't required to store it below decks, this bantam U. S. Navy bomber, recently flown publicly for the first time, can carry an A-bomb. The mighty midget is the A4D Douglas Skyhawk, now in production for service aboard carriers. Its single jet engine gives it a top speed exceeding 600 m.p.h.

Copyrighted material

Can Science Stop Dust Storms?

There's hope that the answer may be "yes" as experts create gales in a tunnel to show farmers how they can tie down their soil.

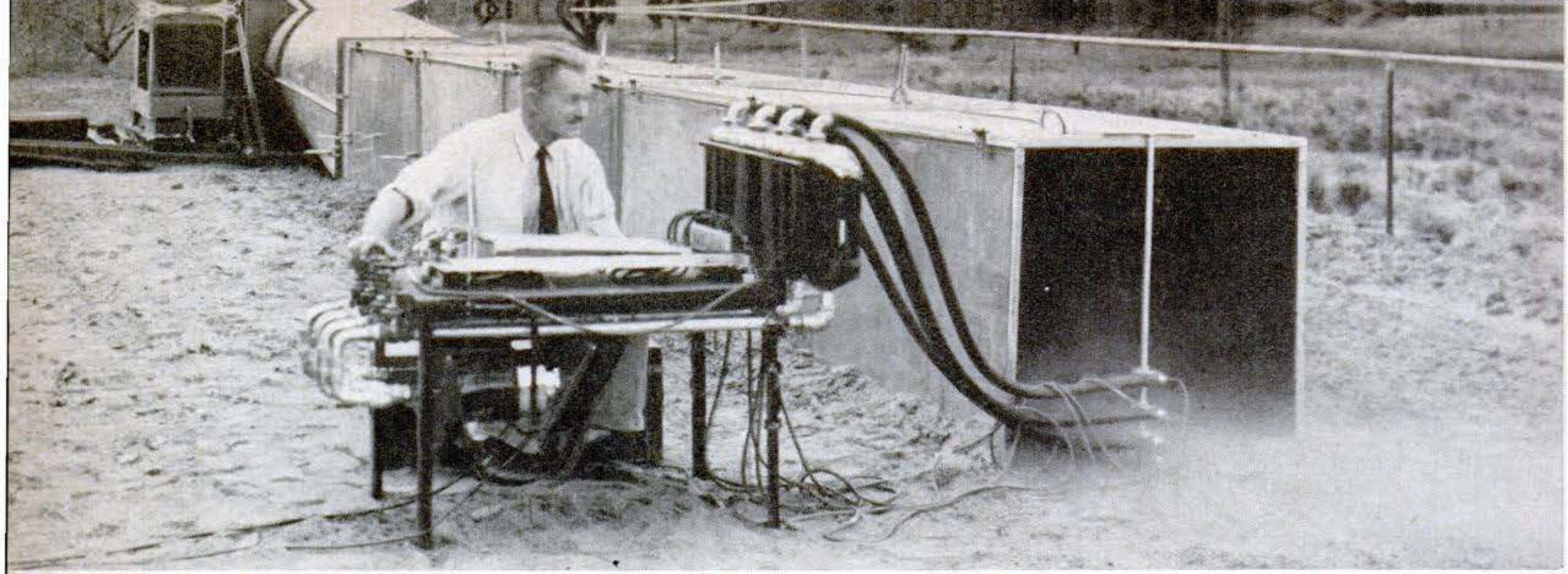
By B. F. Sylvester



A TEAM of weather-burned scientists in field boots, armed with a folding wind tunnel that they can tote on a truck, are out these spring days on the trail of a major menace to your food supply.

Their quarry is the grinding wind that, increasingly in recent years, has been scouring the fertile topsoil from America's Great Plains and scattering it hundreds of miles away in choking dust storms.

Fifty million acres of cultivated land lie at the mercy of these black blizzards. Last spring large sections of the U. S. suffered wind-blown soil losses that equalled the

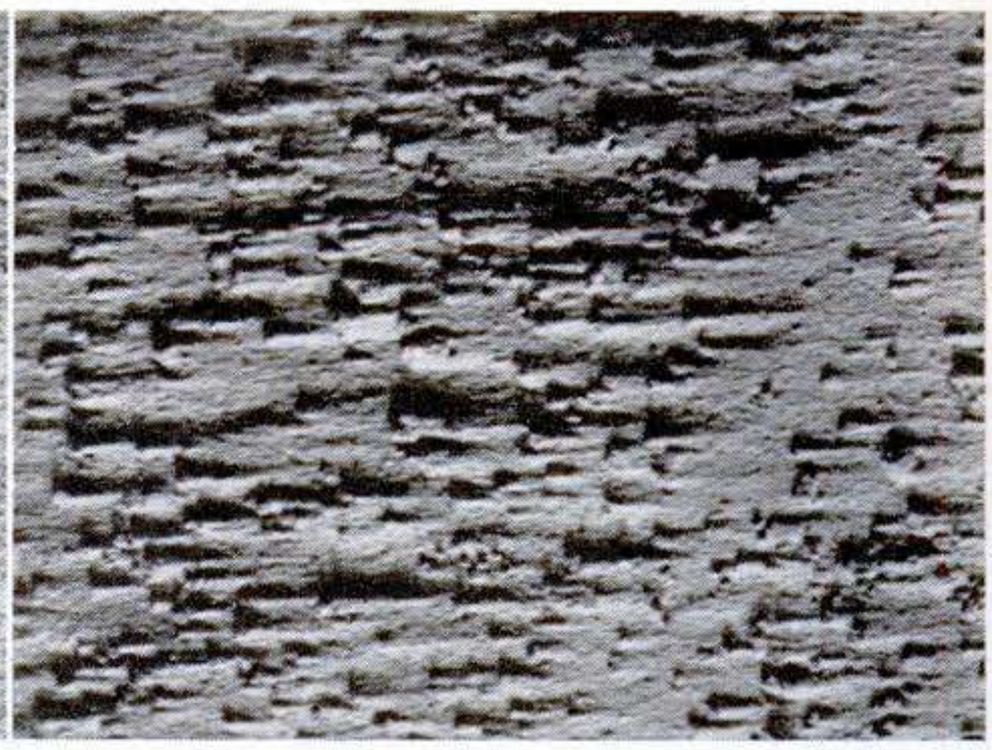


AS WIND BLOWS through the portable tunnel, dust samples are collected by suction hoses connected to sawed-off home-type vacuum cleaners. The amount of dust is also measured.

Soil men blow up a storm to duplicate Nature's action

WHITE STREAKS in this photo of a wind-tunnel dust storm show the leaping action of dirt particles—the flight patterns that cause erosion.

MAN-MADE WIND leaves rich farm land bare. Photograph at left below shows a patch of fertile soil before it was exposed to the eroding action of wind. Then wind tunnel was turned on, stripping off most of the topsoil, leaving the barren patch shown in second photo. Projecting clods protected remaining particles.



dust-bowl ravages of the dirty Thirties. Then came the hottest, driest summer on record, followed by a dry fall, pointing to more trouble this year.

What can be done to stop this destruction of our greatest national resource?

Soil scientists at Manhattan, Kan., are now getting some of the answers to that question by creating test-tube dust storms in wind tunnels. By studying how dust storms start and how they wreak their havoc, these scientists are finding ways to help the farmer keep his dirt tied down when the big blows strike.

The Manhattan dust-storm project, headquartered on the campus of Kansas State College, is sponsored by the U. S. Department of Agriculture and the college and state experimental stations. At its head are two world-known soil scientists, A. W. Zingg and Dr. W. S. Chepil.

Theirs is no stay-at-home job. At times they drive as much as 800 miles to stir up miniature dust storms with their portable wind tunnel.

This field model, 30 feet long, three feet wide and three feet high, is made of aluminum sections, open on the bottom. It can be set up on a farm in 15 minutes. The wind is provided by the power end of an old tractor and a three-foot ventilating fan. A governor and

Copyrighted material

manually operated vanes in front of the blower control velocities up to 40 miles an hour. The air is delivered through 324 two-inch aluminum tubes. These remove the whirl caused by the fan, straightening out the blast so that it simulates a natural wind as it roars through the tunnel and over the soil.

As the man-made wind whistles noisily away, the amount of soil blown out is measured and samples are sucked up by sawed-off home vacuum cleaners. When all the soil that will blow off has been removed, usually in less than half an hour, the wind machine is moved to another farm site. The amount of soil taken from a single 90-square-foot plot covered by the tunnel has run as high as the equivalent of a real dust-storm loss of 1,000 tons an acre.

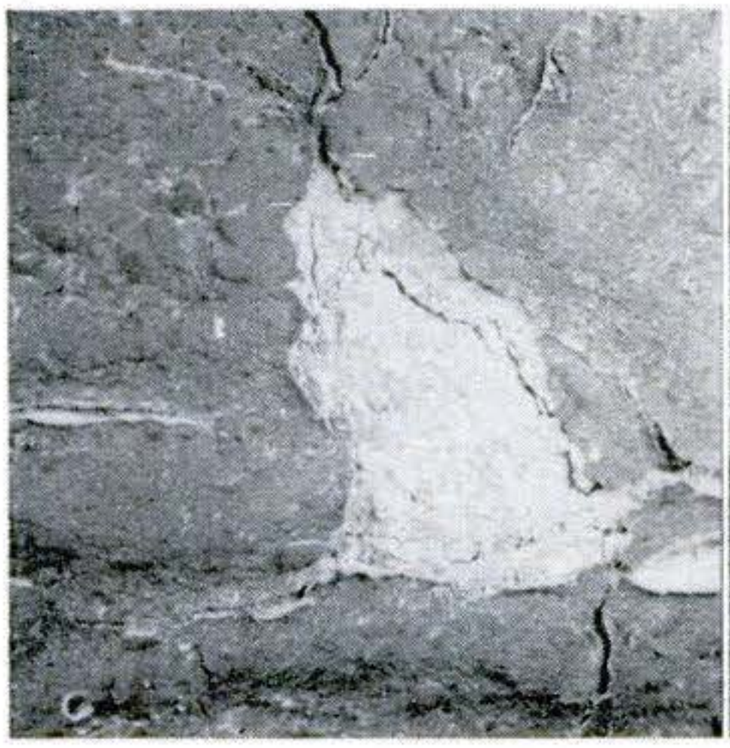
An important accomplishment of the scientists was learning the three main factors affecting wind erosion: make-up of the soil, surface toughness, and the amount of crop residue a farmer leaves as a cover.

Almost any cover left on a field is a help, they have found. What they plug for, however, is a heavy stubble and straw cover up to 18 inches high. But even a farmer who has kept no cover is

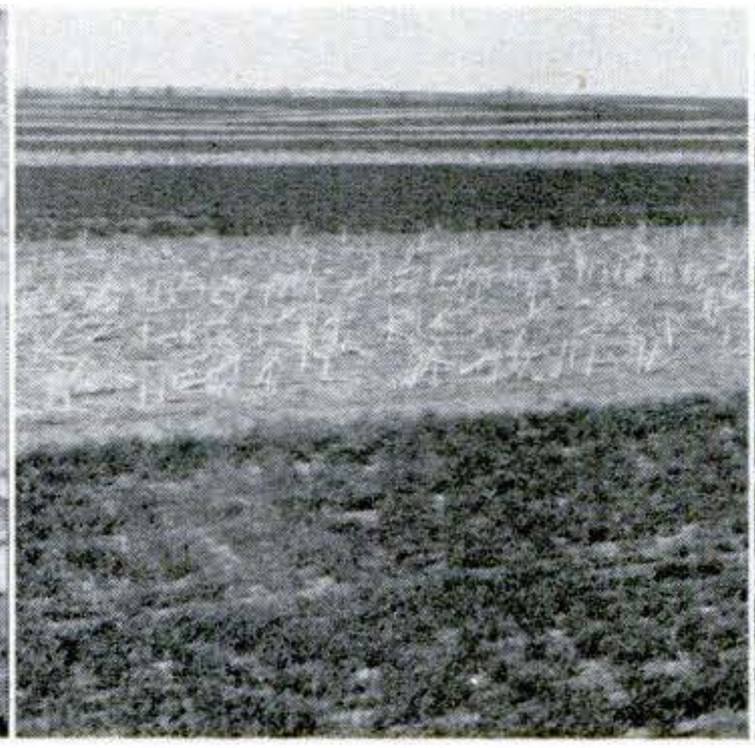
[Continued on page 274]

These steps protect croplands against the ravaging wind

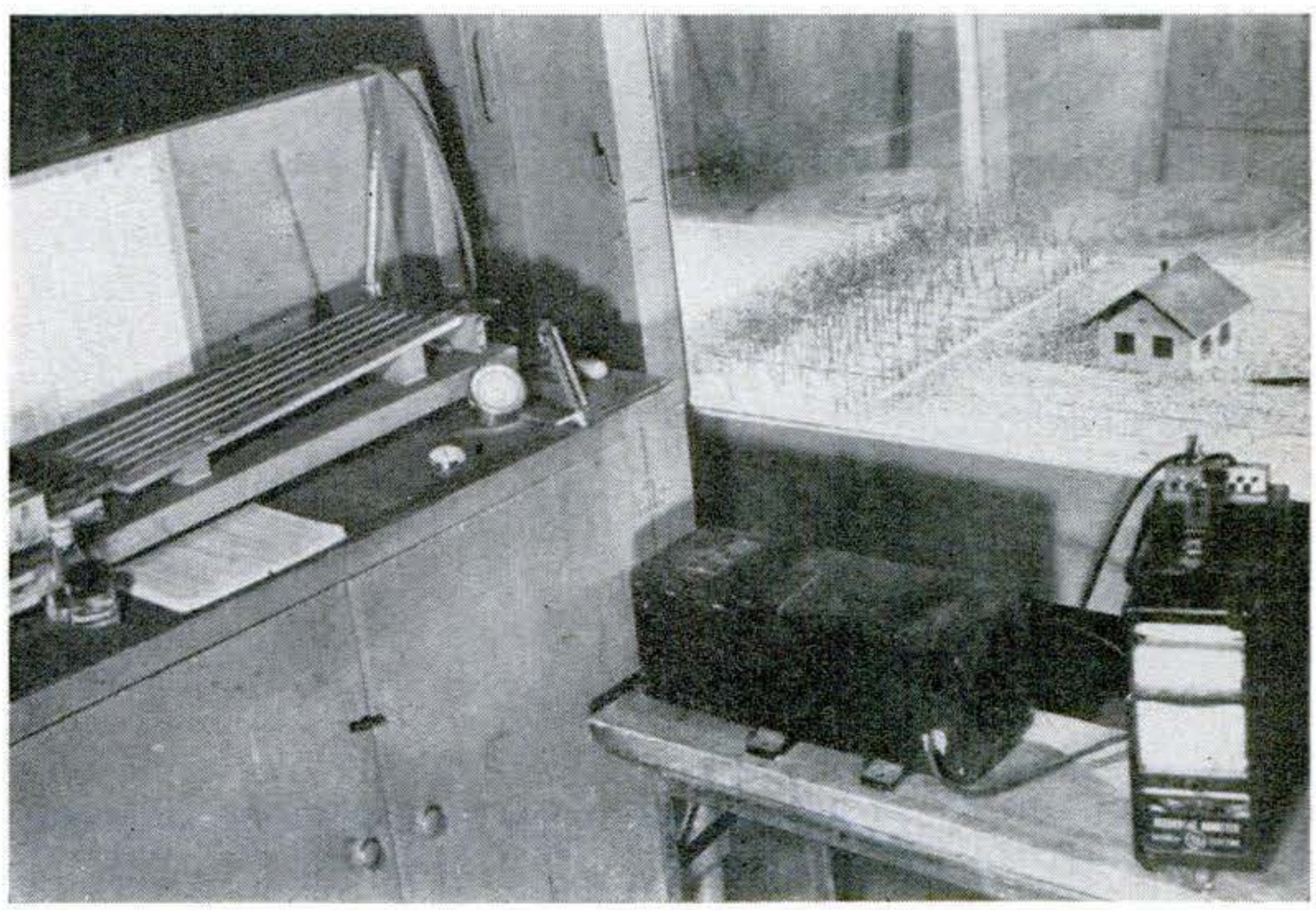
ASPHALT-EMULSION cover protects completely against wind. Light area, where film has been removed, shows the highly erodible soil below.



ALTERNATE STRIPS of stubble and cover grass hold soil fairly well. After several years of drought, however, even these will fail to halt the damage.



DEEP FURROWING is one workable solution. Ridges of wind-resisting clods do an excellent job of keeping the soil from being blown away.



LARGER laboratory wind tunnel has alternate glass panels. These enable Manhattan, Kan., soil scientists to study and photograph the birth of a dust storm from a breeze to a black blizzard. At far right can be seen a shelter belt of miniature trees, built to find out how much protection it will give a farmhouse and fields from the ravages of big blows. Wind velocities are measured by the instrument at left.

Copyrighted material

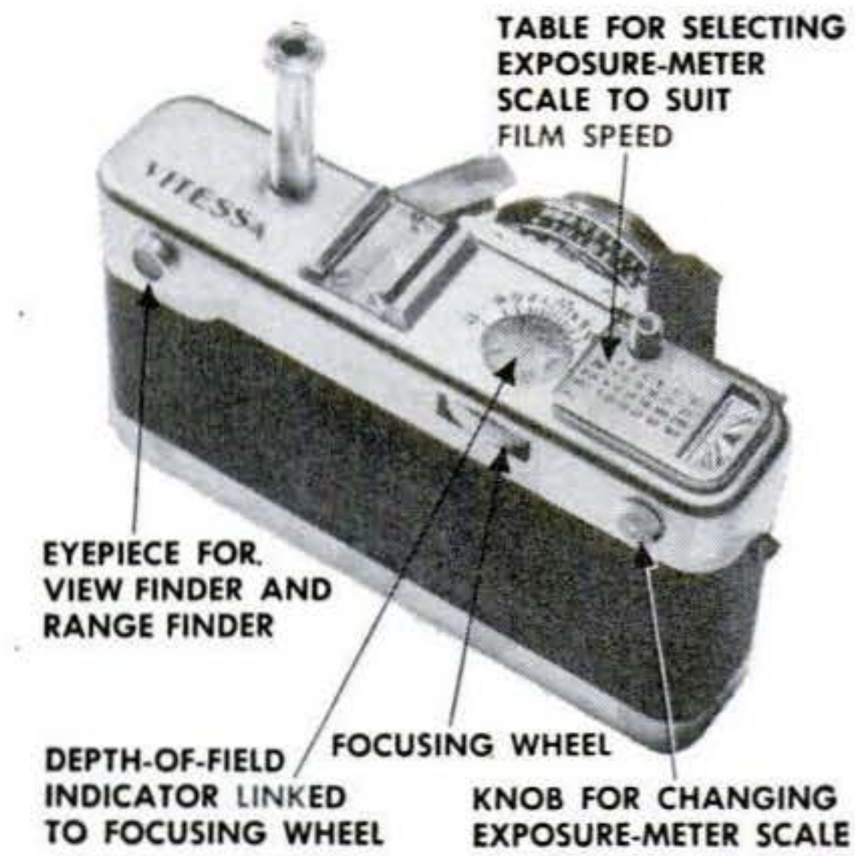
TIME-AND-FILM-SAVING FEATURE is new LVS Compur shutter with interconnected diaphragm. You set "Light Value" lever to number given by built-in exposure meter. Shutter-speed setting then automatically adjusts diaphragm to correct opening, which changes with shutter changes. To pick a desired lens opening, you move shutter setting. Same shutter is used on some other imported cameras, such as Ansco Super Regent, Rolleiflex.

Automatic Shift on Camera Links Lens Opening, Shutter

YOU just flip open the case and punch buttons with a new camera that does almost everything but compose the picture. The Voigtlander Vitessa L, a 35-mm. f/2, offers these automatic niceties:

- Flash built into the case lid. You can close the case with a bulb in the reflector.
- The diaphragm opening automatically changes whenever you change shutter speed—and vice versa.
- You can make pictures as fast as you can push two buttons. One advances the film and cocks the shutter; the other trips the shutter.

The de luxe model shown above sells for about $160 (without flash case). Willoughbys, 110 W. 32nd St., NYC, is the distributor.



They Say Now .....

DR. J. ROBERT OPPENHEIMER: *"The frontiers of science are separated now by long years of study, by specialized vocabularies, arts, techniques and knowledge from the common heritage even of a most civilized society; and anyone working at the frontier of such science is in that sense a very long way from home."*

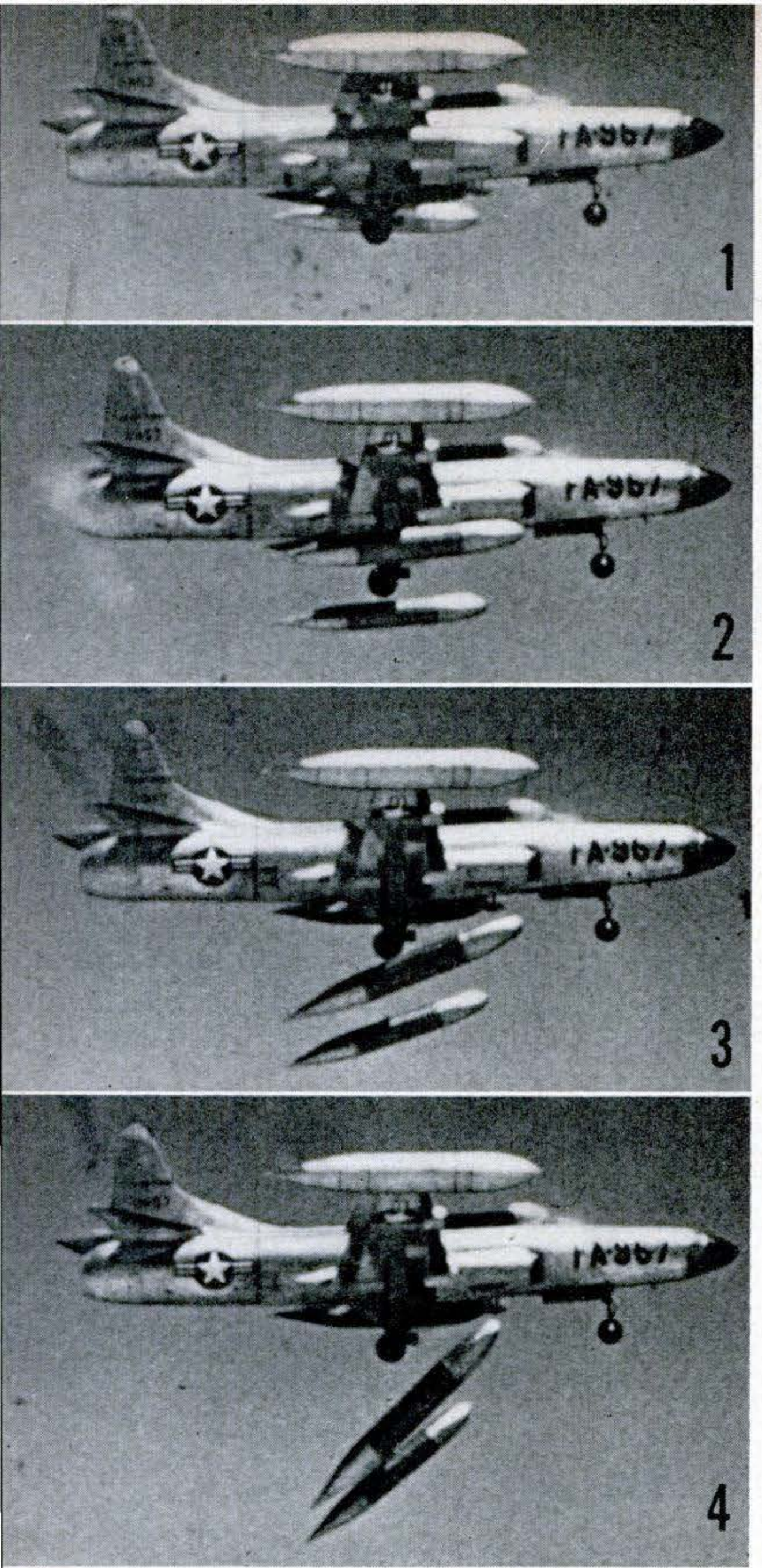
CRAWFORD H. GREENEWALT, PRESIDENT, DU PONT CO.: *"America was built by people who wore rose-colored glasses."*

DR. JEROME W. CONN, UNIVERSITY OF MICHIGAN: *"From the time of our birth, we come out fighting; aware of it or not, we fight for survival until we take our last and final breath."*

DR. ALAN GREGG, VICE-PRESIDENT, ROCKEFELLER FOUNDATION: *"The best thing an adviser does is to listen."*

RICHARD WEIL JR., PRESIDENT, NATIONAL ASSOCIATION FOR MENTAL HEALTH: *"Mental illness took a greater toll during the past year than ever before in our history."*

Copyrighted material

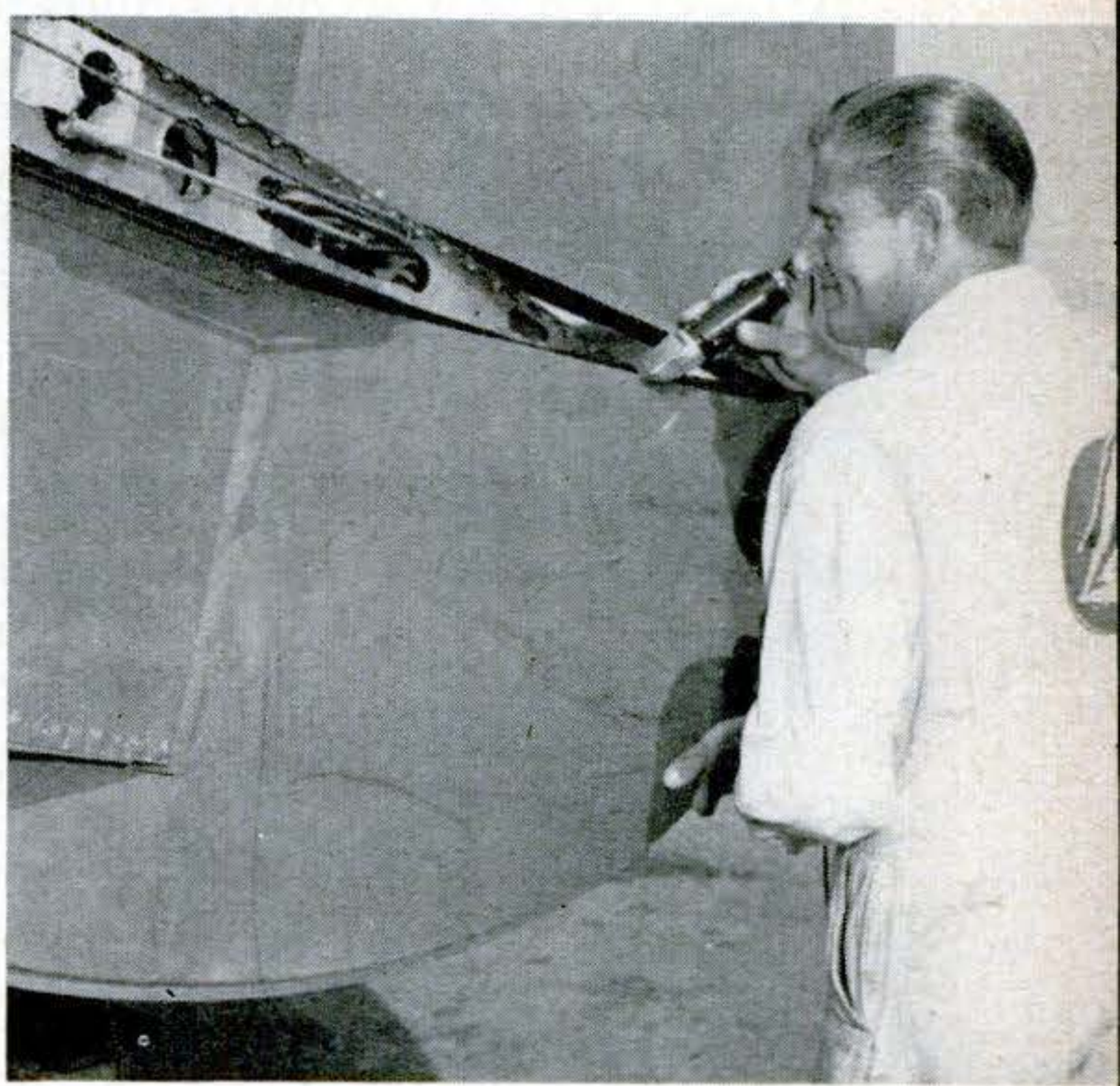


Gun Shoots Plane's Tanks Free

PILOTS of supersonic planes no longer have to worry whether dropped bombs or jettisoned fuel tanks will fall away cleanly. A new gun shoots them off the airplane, as shown in the series of photos above. The ejection system is enclosed in an underwing housing to which the bomber tank is attached. Two cartridges exploding in the gun chamber open the fasteners and drive a piston down to kick the bomb or tank away. Patushin Aviation says it works even when a plane is flying upside down.

Nutshells Blast Dirt Off Jet

RIGGED up like a spaceman, this worker is using a combination of rice hulls and ground walnut shells to blast off surface dirt on GE jet engines. The strange mixture, less harsh than sand, blasts out of the gun at nearly 1,000 miles an hour. Air spraying downward from the top of the helmet keeps the operator comfortable.

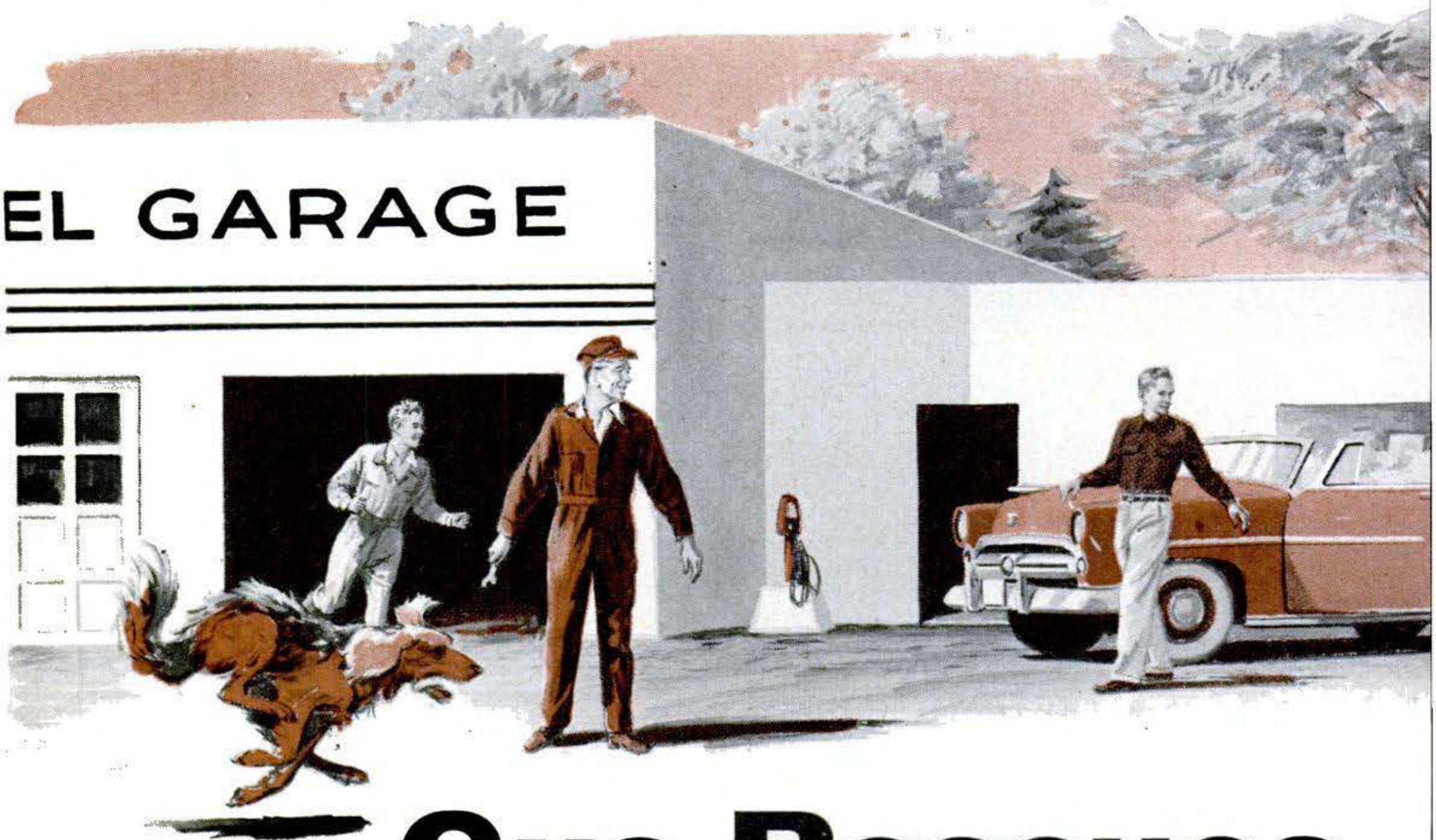


Barber Clippers Trim Plane Tail

THE aircraft worker above is giving an airplane a haircut. He's trimming nylon brushes with an electric clipper just like the one your barber uses. The brushes are set between fixed and movable wing and tail surfaces on big Learstars. Sheared close, the bristles close apertures to prevent drag-producing air flow.

Copyrighted material

"At least," the Doc had said, "my horse



Gus Rescues

GUS WILSON was standing by the gas pumps before his Model Garage when the commotion began. Down the street at a dead gallop came a rickety, ancient buggy, drawn by an old pot-bellied gray mare. With every leap of the frantic horse the black, tasseled top of the rig threatened to collapse on the driver, who sat on the high seat, a tremendous meerschaum pipe clenched in his bewhiskered jaw, urging the horse to greater effort.

The clattering passage of this outfit effectively shattered the peace. Folks ran from stores and shops to look, and some even leaped into their cars and took up pursuit.

"Doc Stanbury!" Gus Wilson gasped. "Somebody must be sick."

Stan Hicks, Gus's helper, was staring, too. "But Doc hasn't practiced medicine in years," he protested. "And why the horse? Doc owns a car."

"Hanged if I know," Gus said, moving to his car, "but I intend to find out. Take over for a little while, Stan."

Knowing Doc Stanbury as he did, Gus was inclined to believe that there was some sort of skulduggery involved in this horse-galloping business. Doc was quite a character about town. In the horse-and-buggy days Doc had been the town's only physician, a waspish, irascible man, smelling strongly of tobacco and disinfectant.

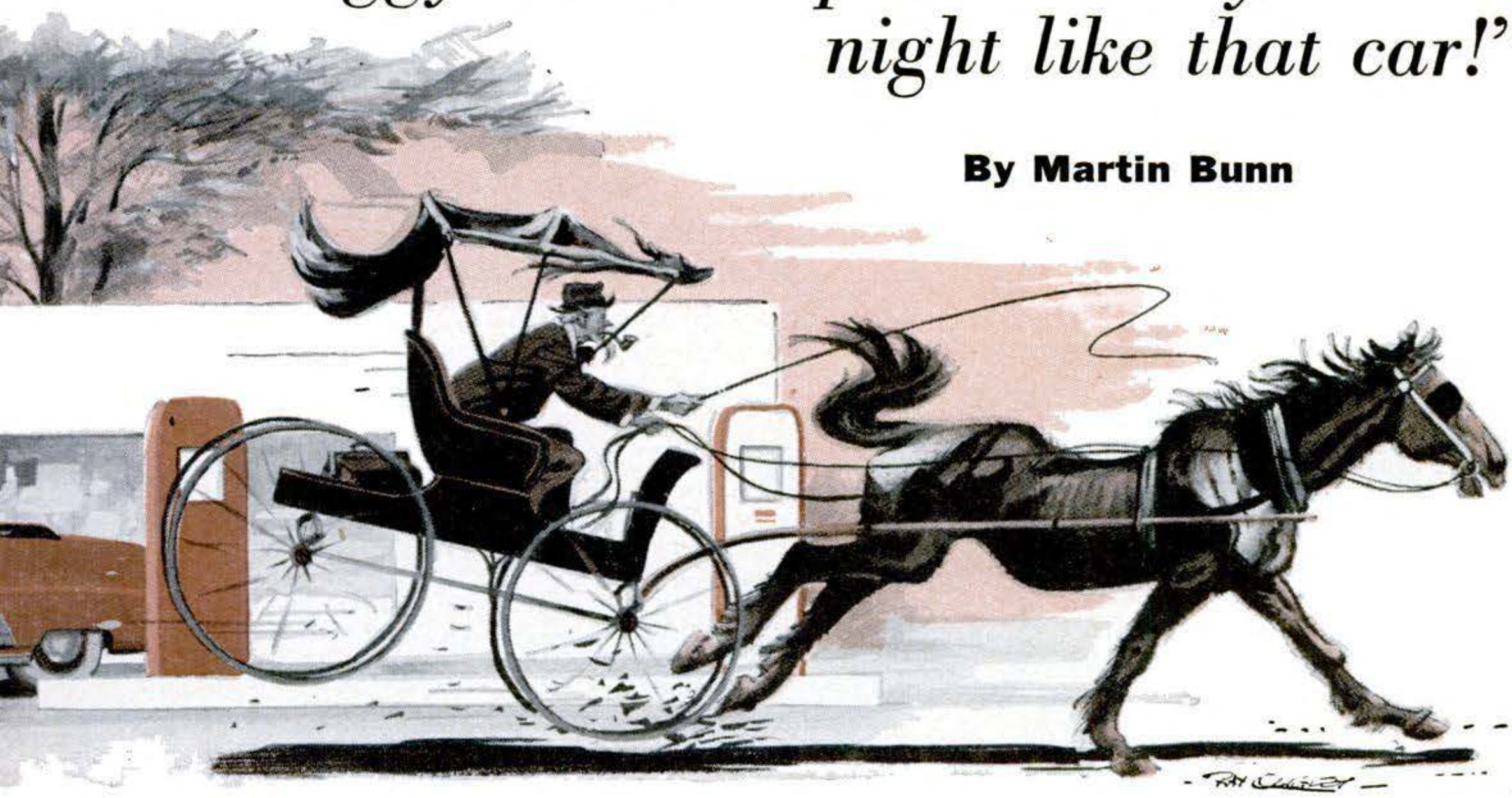
YET beneath Doc's rugged exterior lurked the warm, impish heart of a Huckleberry Finn. Doc was the person who had in exasperation squirted Mrs. Sam Hepworth in the face with a garden hose, to cure her of the fake heart attacks by which she held her meek husband under her thumb.

Doc had reluctantly pastured his beloved horse in favor of a car during his later years of practice. During the past three years his main activities had been built around hunting and fishing with his old friend, Todd Beacham, and playing

Copyrighted material

and buggy don't drop dead every night like that car!"

By Martin Bunn



a Competitor

poker with some of the boys at the club.

Topping the first hill at the edge of town, Gus saw that the fleeing procession before him was streaming into Todd Beacham's farmyard. Perhaps he was wrong, Gus told himself, in thinking that Doc was up to some sort of trick. Maybe Todd Beacham was sick. Todd would surely call on Doc Stanbury rather than any of the younger doctors. But why would Stanbury travel there by horse? Why didn't he use his car?

Gus had a hunch that he knew the answer. For the past few weeks Doc had been complaining loudly about town about the constant failure of a new battery which he had purchased from Roy Williams, who ran a newly established auto-supply house in town. The battery, according to Doc, went stone dead every few days while the car was in the garage overnight. Gus speeded up and joined the group in Beacham's yard.

"Who's sick, Doc?" someone asked. "Is Beacham sick?"

"Of course I'm not sick," Beacham said from the front porch. "My cow's got the heaves."

The onlookers, who knew that Doc Stanbury would be insulted if called upon to treat a sick cow, stood in stunned silence. Then it began to dawn on them what this was all about, as it had long since dawned on Gus. A snicker arose here and there.

"Cow with the heaves!" one man laughed. "Wait till Williams hears this!"

Gus had heard enough. He turned away, his mind full of confused thoughts. Doc, as he had suspected, was up to something. Irritated by his constantly dead battery, he was taking revenge on the man who had sold it to him. With a flair for the spectacular, and with, perhaps, a subconscious yearning to gallop his horse through the streets once more as he had done as a young doctor, Doc had called his plight to the attention of the town and held Roy up to ridicule.

Without uttering one single word, and

Copyrighted material

with Todd Beacham's cooperation, of course, Doc had managed to intimate that he could get around town faster with his old horse and buggy than with a car equipped with one of Williams' batteries.

It was a brilliant stroke of publicity, and undoubtedly, to Doc, a good joke. But to Gus there was more to it than this. Roy Williams' auto-supply store was a small operation with low overhead. There were businessmen about town who resented Roy's new business, and resented having to compete with him. Gus felt that around the poker table at the club, some of these businessmen might have needled Doc into his horse-and-buggy parade.

"I guess it's all right to get out . . . He seems friendly enough."

But would other people see this as clearly as Gus did? He'd be hanged, Gus told himself, if he'd have any part of it. The thought sent the Model Garage owner to Roy Williams' shop, where he entered, looked Williams in the eye, and told him flatly that he had had no hand in the farce.

"I DIDN'T think you would, Gus," Williams said evenly. "My brands of merchandise are new to folks and they don't trust them until they prove themselves out. Doc Stanbury bought my first battery, and since he's been complaining about it, I can't get anyone else to try one out. The worst part of it is that the more I try to straighten things out with Doc, the worse they get. I've exchanged batteries with him three times, and they all went dead at one time or another, while the car was parked overnight in his garage. This gives him a chance to claim that all my merchandise is phony. I'm sure there's a short in his car. If there is, I can't find it, and there's the rub. What can I do, Gus?"

"There's only one thing to do," Gus told him grimly. "Hire a competent mechanic to get the facts. Either your batteries are no good, as Doc claims, or his car has a short. It's as simple as that."

"You're right, Gus," Williams conceded. "I'll get Doc to bring the car in to your garage."

THE next day, Doc Stanbury drove his big sedan in. He waved aside Gus's offer to drive him home. "Don't bother," he told the Model Garageman. "I've got my rig around the corner. It's slow, but at least the horse and buggy don't drop dead every night like that car of mine!"

Working on the car later, Gus scratched his head in bewilderment. He was stuck. He could find no short in the car, and there seemed to be nothing wrong with the battery.

The battery took and held a charge. It stood up under 300-ampere breakdown tests. Snapping the battery ground wire against the frame yielded not even the sign of a spark to indicate a short. Nor would any instrument in Gus's possession show a short. Gus checked out every wire for breaks or bare spots. He tightened all wiring terminals. The fuse in the electric clock was the right size, so the clock could not be suspected. Nevertheless, to make sure, for here was the only known drain on the battery overnight, Gus disconnected the clock.

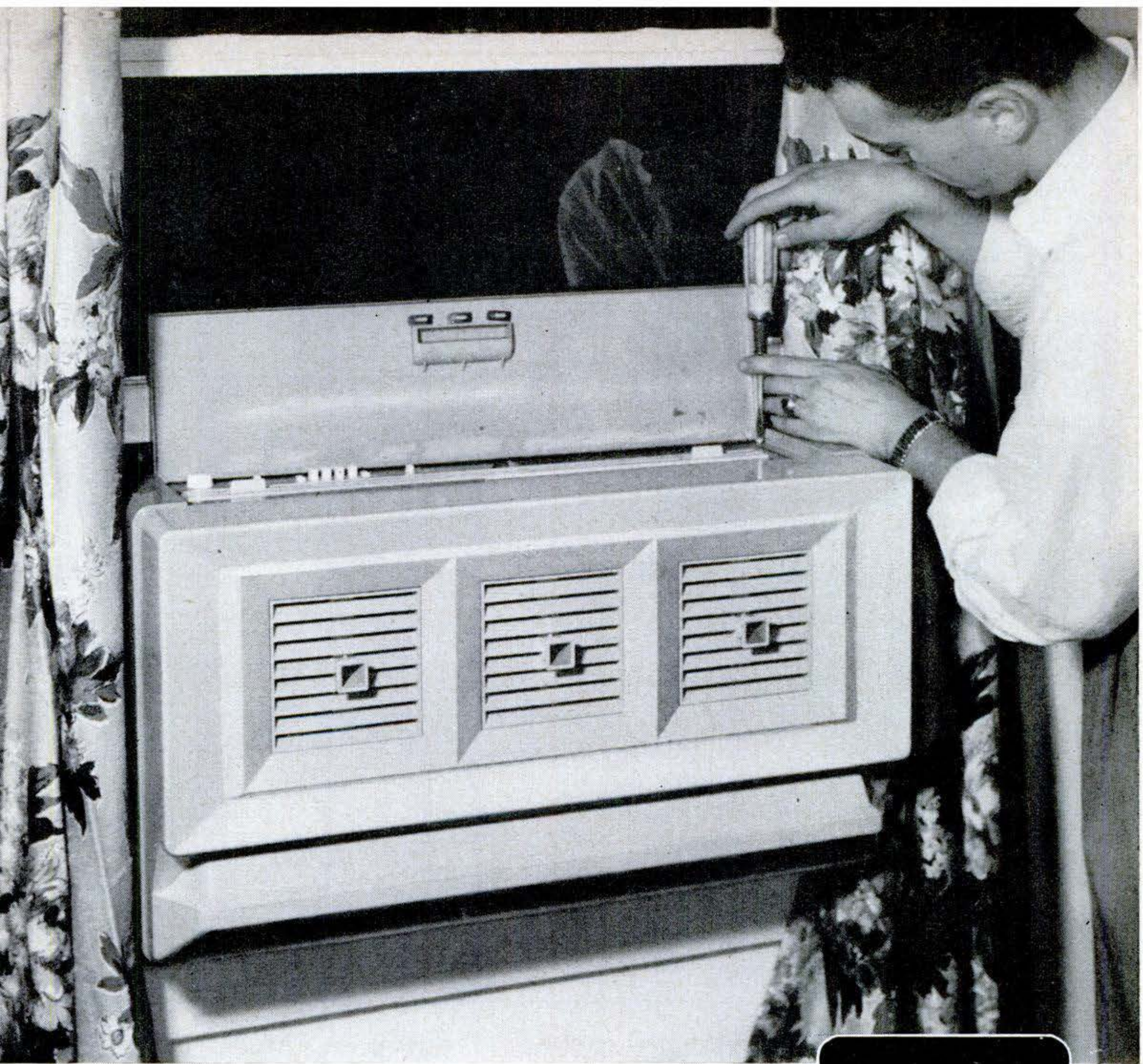
Hoping that he had in some way overcome the trouble, he turned the car over to Doc. Two nights later the battery went stone dead.

This brought a new suspicion to Gus's mind. Was Doc leaving a switch on at night, to keep the farce alive? Gus began to feel like a fool.

"This deal," he told Stan Hicks, "has about got me stumped. It would be use-

[Continued on page 252]

Copyrighted material



MECHANICS *and* HOMEBUILDING

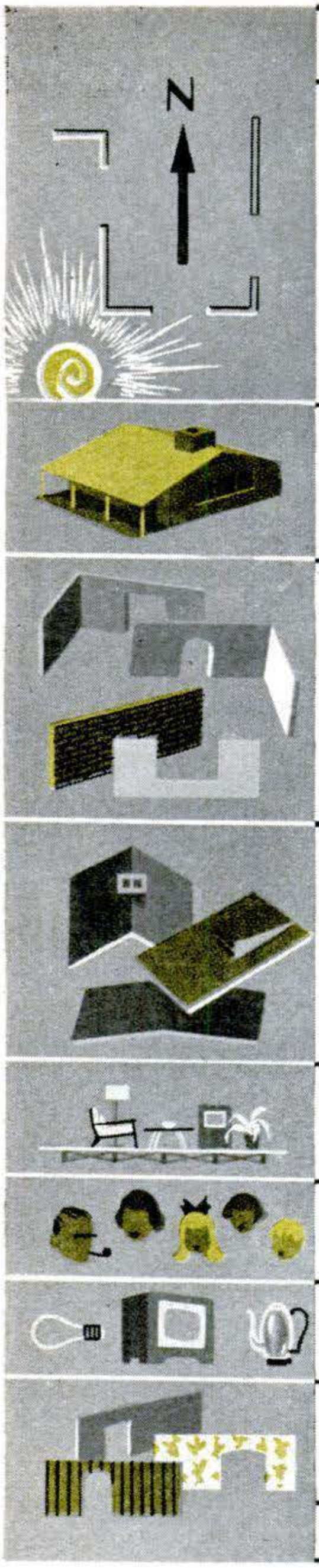
What you should know about

Installing a Room Air Conditioner

SWELTERING at home in hot weather is no longer necessary. You can install a room air conditioner in a half-hour without help, except to lift the heavy main unit, and with tools you already have in the house. And prices run lower than you might expect—from under $200 to just over $600, depending upon the size, make and the de luxe extras you may want.

But give some thought before you buy one to operating efficiency and ultimate comfort. The location of the air conditioner, type of installation, size and ade-

Copyrighted material



ITEM	QUANTITY	FACTOR (multiply by)		COOLING LOAD
1. Window Area Exposed to Sun		Inside Shades	Outside Awnings	
a. East, southeast or south	sq. ft.	45	25	.....
b. Southwest	sq. ft.	65	40	.....
c. West	sq. ft.	100	60	.....
d. Northwest	sq. ft.	35	25	.....
Figure all windows for each exposure, but use only the exposure with the largest load.		If windows have shades *and* awnings, use awning factor only.		
2. All Windows Not Included in Item 1	sq. ft.	14		.....
3. Walls (lineal feet)				
a. Light construction, exposed to sun*	ft.	90		.....
b. Heavy construction, exposed to sun*	ft.	50		.....
c. Shaded walls or partitions (all walls not included in 3a or 3b)	ft.	30		.....
*Same exposure used in Item 1.				
4. Roof or Ceiling (one only)				
a. Roof, uninsulated	sq. ft.	16		.....
b. Roof with 1" or more insulation ...	sq. ft.	7		.....
c. Ceiling, with occupied space above.	sq. ft.	3		.....
d. Ceiling, with attic space above ...	sq. ft.	10		.....
5. Floor (omit if on ground or over unheated basement)	sq. ft.	3		.....
6. People (number using room)	people	900		.....
7. Lights and Electrical Equipment in Use in Room	watts	3		.....
8. Doors and Arches Continuously Open to Unconditioned Space (width)	ft.	300		.....
9. Total Load				

ON THE AVERAGE...	
If your total comes to approximately...	**You need an air conditioner of...**
4,200	⅓ hp.
6,000	½ hp.
8,500	¾ hp.
10,500	1 hp.
16,000	1½ hp.

Finding the size conditioner you need

Sample problem: Assume you have a 12'-by-15' room with three exposures, east, south and west, and one 3'-by-5' window in each wall. You have both awnings and shades. Walls are of heavy construction. There is a ceiling with occupied space above, a floor over an unheated basement, and no open doors or arches. Three people use the room at one time. Electrical equipment takes 500 watts. Item 1 (15 x 60) is 900; item 2 (30 x 14) 420; item 3 (15 x 50 plus 39 x 30) 1,920; item 4 (180 x 3) 540; item 5, zero; item 6 (3 x 900) 2,700; item 7 (500 x 3) 1,500; item 8, zero. Total cooling load, 7,980. Chart at left shows that a ¾-hp. unit is needed.

Copyrighted material

Where to locate **NORTH WINDOW,** left, away from hot sun, is best. For other exposures, shield windows with awnings or trellises.

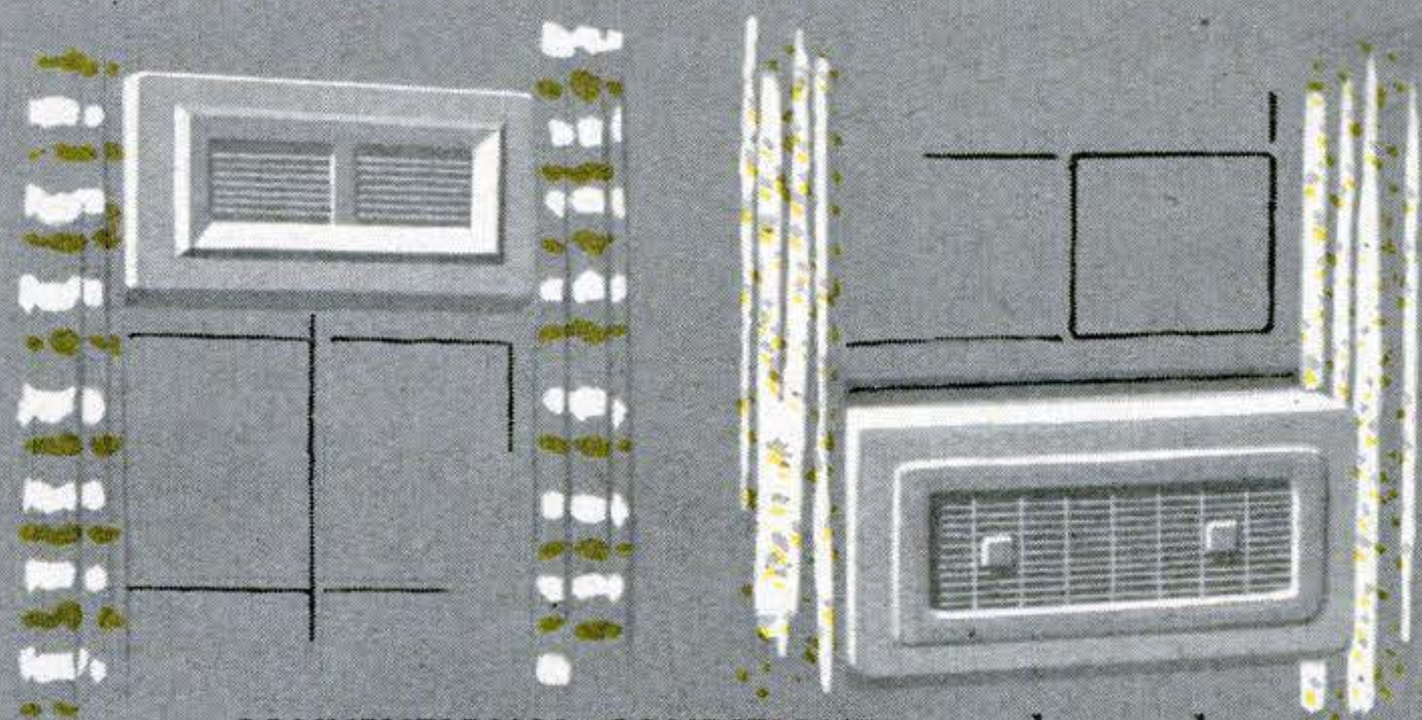
quate wiring are all important factors.

Selecting a location. If the room you want to condition is on the north or a shady side of the house, you are fortunate. This can mean an initial saving as well as lower operating costs by allowing you to use a smaller (and less expensive) model than would be required for a western or southwestern exposure where you get the hottest and longest hours of the summer sun.

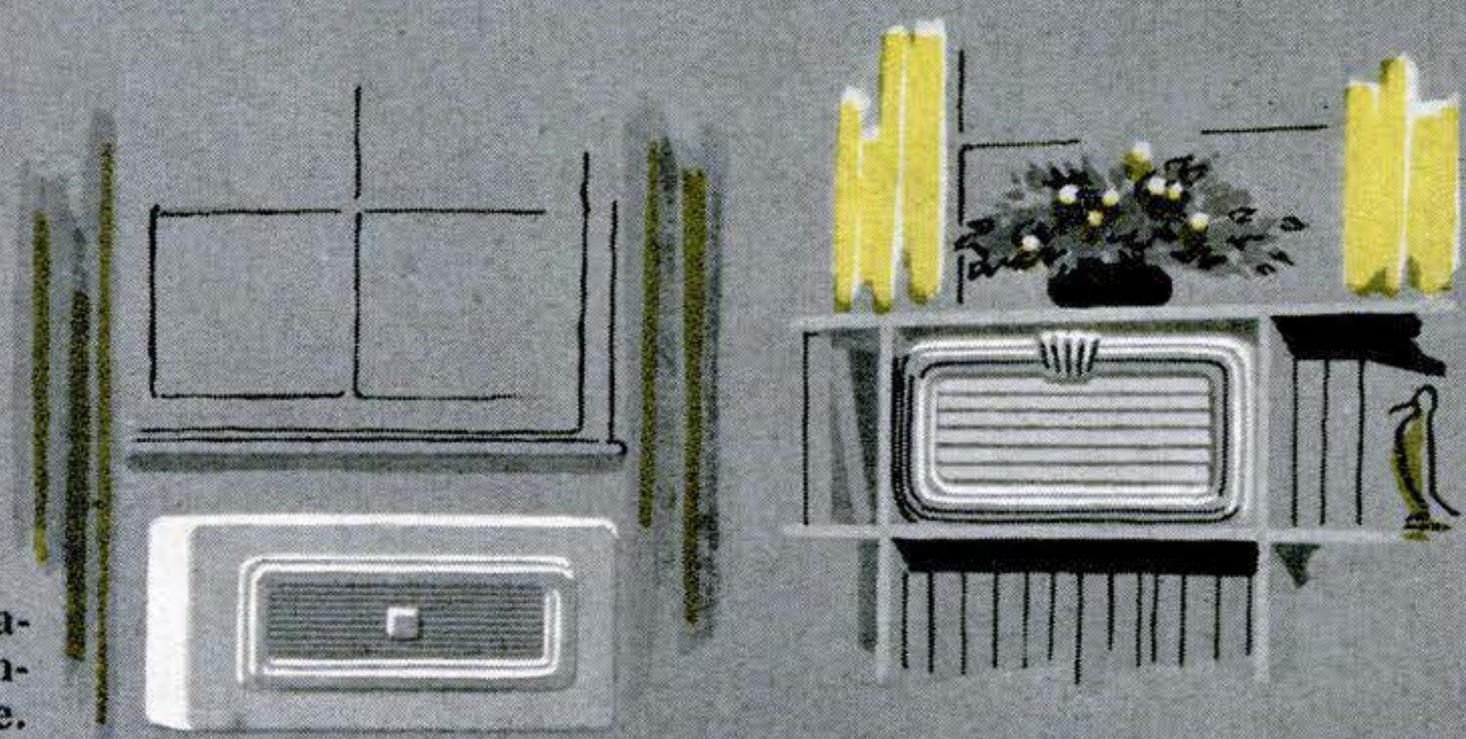
If the room isn't on the north, you can still make a saving by putting the conditioner in the window or wall least subject to sun. The cooler the air supply, the less work the unit will have to do

What type of installation

VERTICAL CONDITIONERS are made for use in casement windows where they are installed in place of one of the hinged sashes.



CONVENTIONAL CONDITIONER can be used in top or bottom fixed frame of casement, above left, or in double-hung window at right.



THROUGH-THE-WALL installations, right, go under a window or through a bookcase.

Copyrighted material

and the less it will cost for you to run it.

Shading the unit and all windows in the room will help. You can use awnings or overhanging trellises with leafy vines. If you don't like awnings or trellises, at least keep the shades drawn during the bright daylight hours.

What type of installation? Room air conditioners are commonly installed in windows, either conventional double-hung or casement. But installation through an outside wall is equally efficient and is becoming popular.

A conventional model is used in a casement window that has a fixed frame at top or bottom. You remove this frame and put the unit in its place. Special vertical models are made to replace one of the hinged casement sashes.

A conventional unit can also be used in a wall installation, with a slight adaptation of the cabinet to make it conform with the plaster or trim. A bookcase against an outside wall affords a perfect location in many cases.

What size? This requires some study. A conditioner that is either too small or too big for the space it must cool will do the job inefficiently.

To determine the cooling load your conditioner will carry, don't rely on a rule of thumb such as dividing floor area by 600 to find the horsepower it needs. There are many considerations involved, and floor area is only one of them. Others include the number of windows in the room, the directions they face, whether awnings or plantings screen them from direct rays of the sun, wall construction and insulation, and even the number of electric lights on and the average number of people in the room at one time.

To size a room, as the experts say, fill out the accompanying cooling-load chart, multiplying each item by the appropriate factor, and add the results.

Then select from the table the conditioner that will handle the total load with a little to spare. There are five basic sizes: ⅓, ½, ¾, 1 and 1½ horsepower (or tons—the words are used interchangeably).

Load ratings vary slightly with manufacturers. Those in the table are average. Your dealer can give you exact ratings for models he handles, or you can get independent ratings from the American Society of Refrigerating Engineers.

Once you have selected the size conditioner you need, don't try to stretch it to cool a second room. If you want to include an extra area, such as a dining L at the end of a living room, figure the total space in the cooling load and install a suitable conditioner in a window or wall facing both areas.

Keep the doors to the room closed—and the windows, too. You can't cool all outdoors, and it costs money to try.

Will you need new wiring? This depends on the size conditioner, but all require a separate fused circuit on which there is no other appliance or load.

The ⅓- and ½-hp. conditioners operate on 115 volts. Most ¾-hp. makes are available in both 115-volt and 230-volt models. All 1- and 1½-hp. models are 230 volts. Most manufacturers also put out their larger units in special voltages common to many big apartment houses.

You will, of course, need a convenient outlet. If an extension is necessary, don't use an ordinary appliance cord for a 115-volt ¾-hp., or larger, conditioner. Use No. 12-gauge wire at least. The separate circuit should also be of the heavy-duty type and should be equipped with a heavy-duty receptacle.

For a 230-volt model you will need a 230-volt circuit, with no other appliance on it, just for the conditioner. This is no great problem if you already own an electric stove or clothes dryer. You simp-

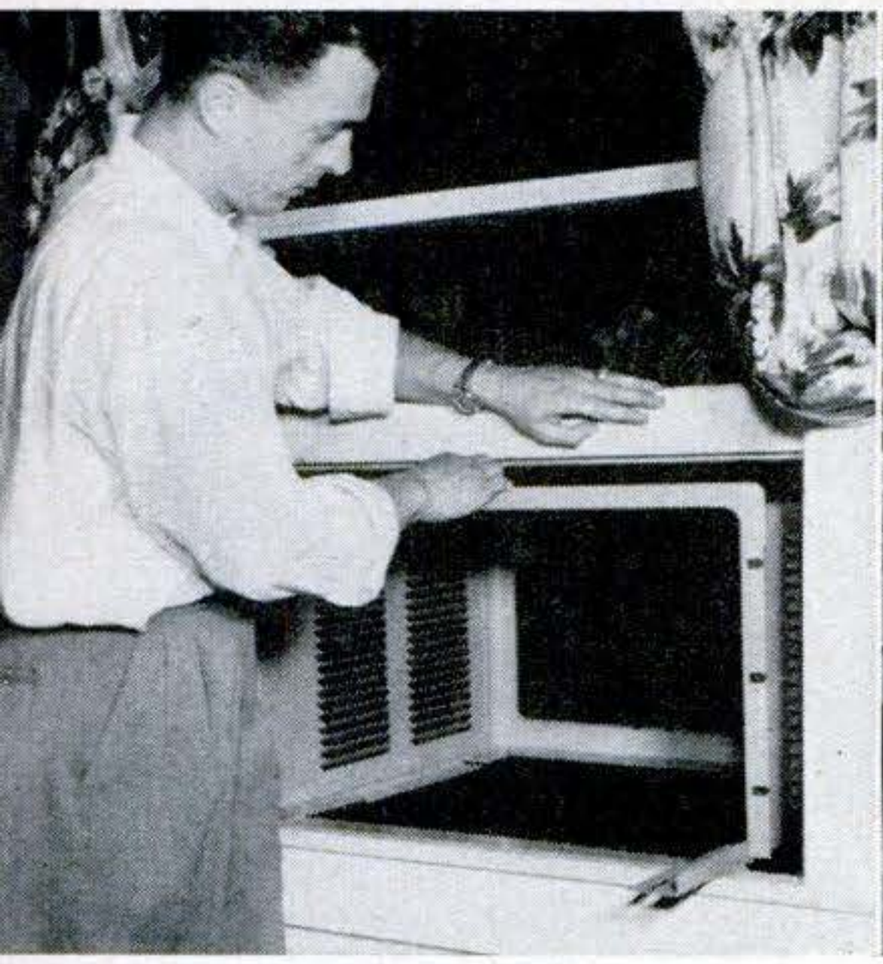
Is your wiring adequate?

Size of Unit	Voltage Required	Separate Circuit?	Minimum Wire Size	Fuse with Time Lag
⅓ hp.	115	Not necessary	—	—
½ hp.	115	Yes, for best results	No. 14	15 amp.
¾ hp.	115 or 230	Yes	No. 12	20 amp.
1 hp.	230	Yes	No. 12	20 amp.
1½ hp.	230	Yes	No. 12	20 amp.

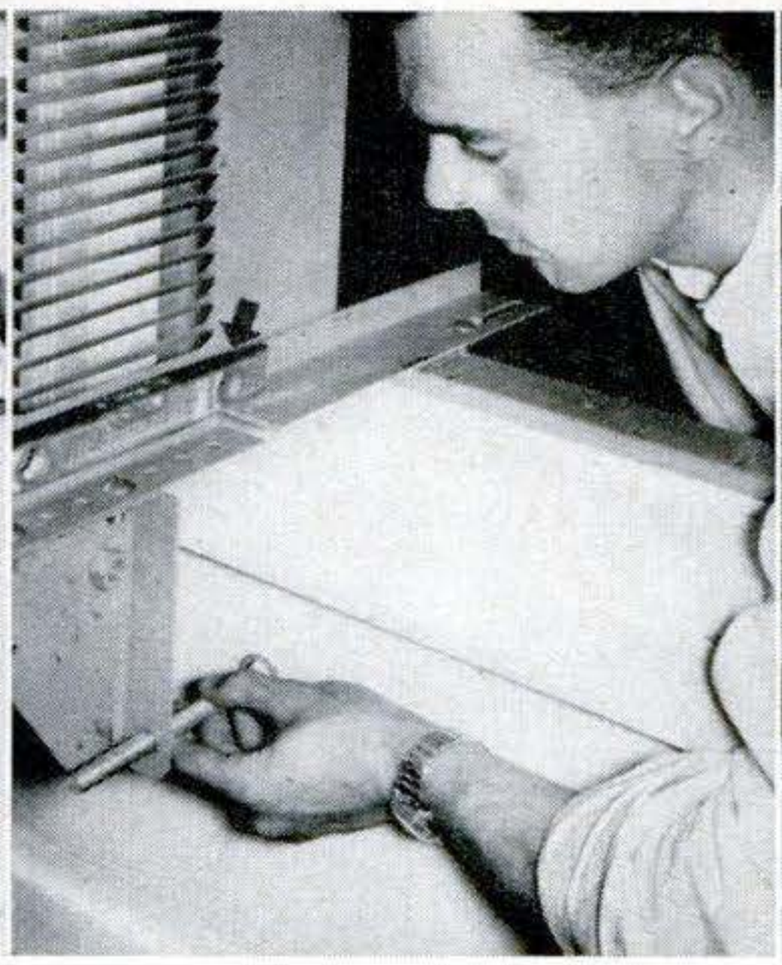
Requirements for air-conditioner models

Copyrighted material

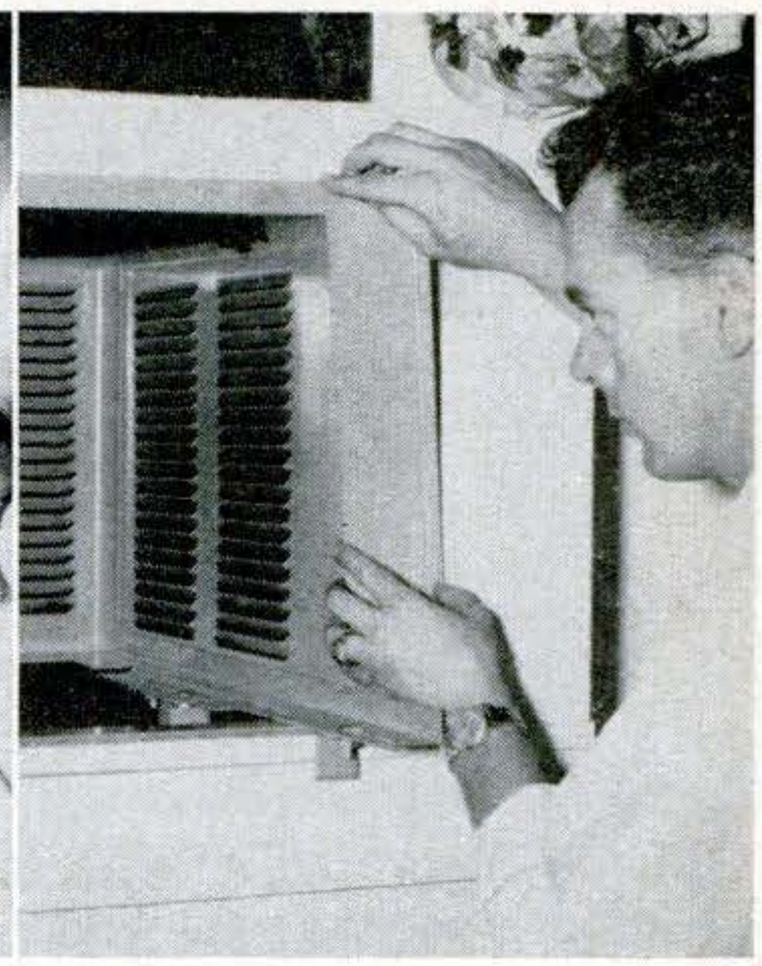
You can install your own room air conditioner



IN TYPICAL INSTALLATION cabinet is centered in window and held by sill clamps and sash.

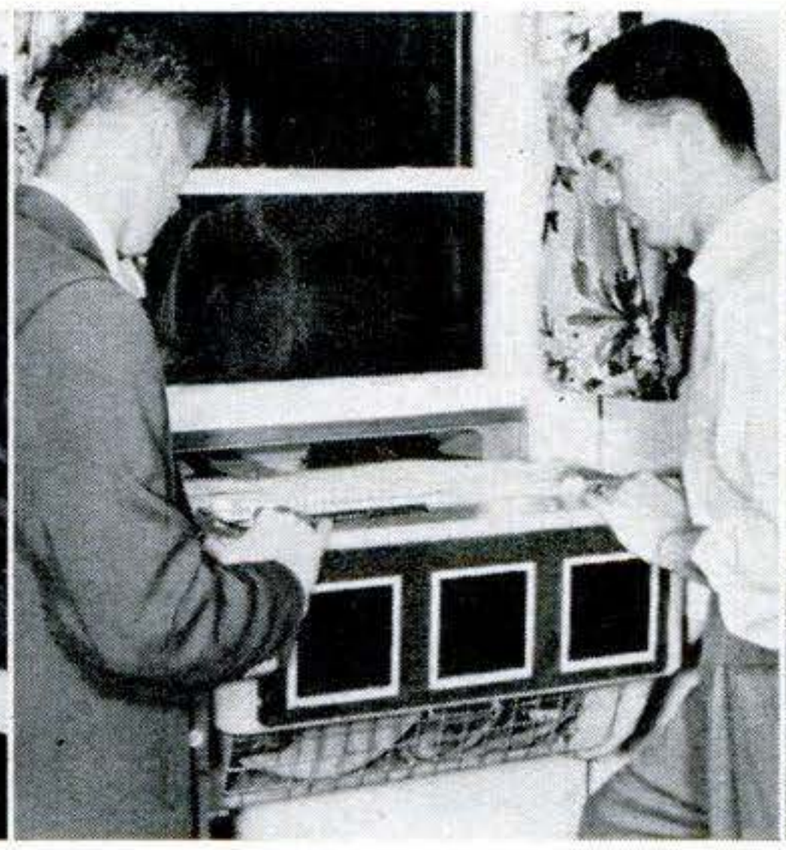


CABINET IS ADJUSTED with level (arrow) by long bolt in support brackets against outside sill.



SPACER PANELS close openings on sides. Cabinet edges are then sealed with rubber strips.

FELT ON LOWER SASH keeps warm air from entering through space between the two panes.



IT TAKES HELP to set main unit in place. Abutting parts of unit and cabinet are also sealed.

FINISHING TOUCH is screwing on panel and grille. Time: 30 min. *(Photos by Westinghouse)*

ly run a separate 230-volt fused circuit from the main electrical panel.

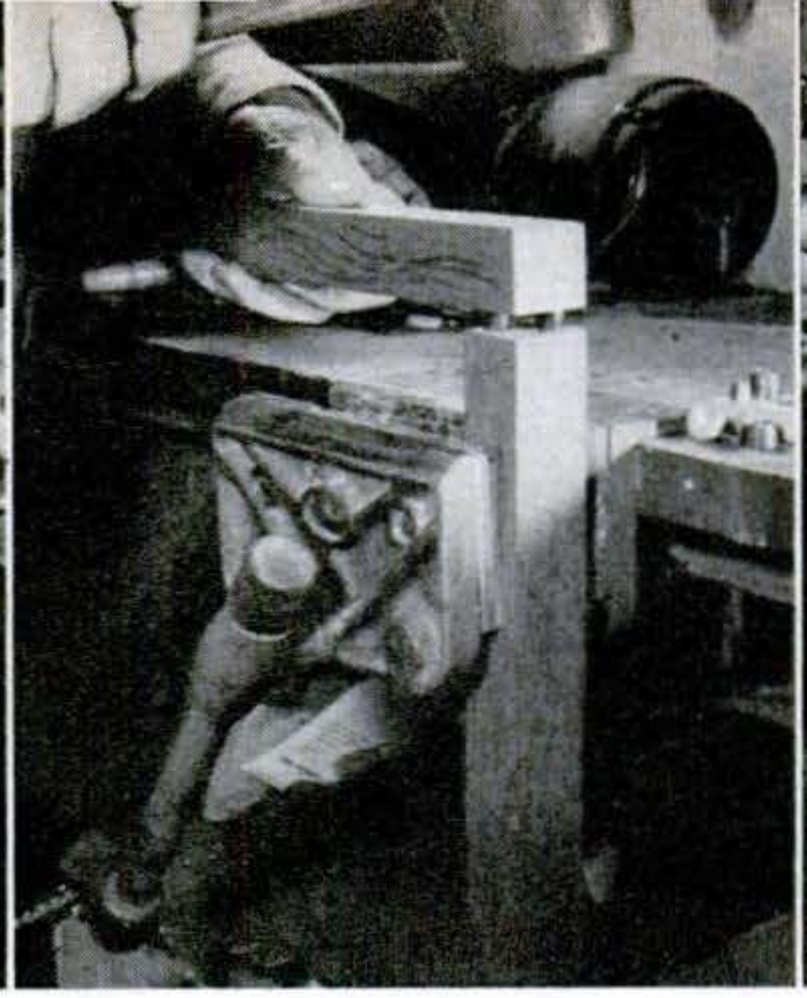
If you do not have 230 volts available at the panel, a line must be run to it from where the utility line enters the house. In most cases—and by law in most communities—this is a job for a licensed electrician.

How to install it. Window installations are easiest. Detailed instructions come with the conditioner, and steps vary but little with the make. You also get a complete kit containing all the accessories you need. Tools for the job are basic: screwdriver, wrench, awl, scissors, rule and level. You can have the unit in operation half an hour after opening the packing crate.

Wall installation requires a little more work. After you cut a hole in the wall, at least 1″ larger all around than the conditioner cabinet, the unit is mounted in the opening with the same supports supplied for window installation. Gaskets of wallboard, molding or similar material are used to fill in the opening at top and sides.

If the wall is thick, you may have to make the hole larger—for clearance of 2″ or more at each side. This prevents blocking up the innermost louvers and lets the air circulate.—*George H. Waltz Jr.*

Copyrighted material

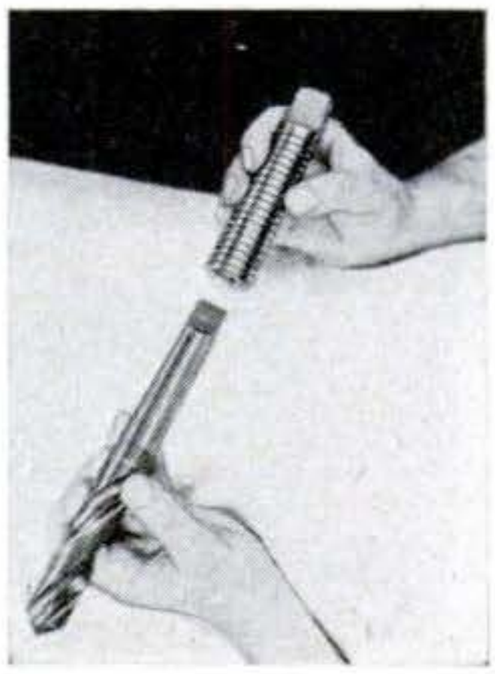


1. Guides Align Dowel Holes. There's no guesswork in lining up dowel holes with these markers. Holes are first drilled in one piece and steel pins slipped into them (above left). Around each pin is a sharp-edged, loose-fitting collar. When the first piece is tapped against the second one (center), the collars are left embedded exactly opposite the pins. The collars then guide the drill for making matching holes. The markers come in sets of six—three pairs for ¼″, ⅜″ and ½″ dowels.

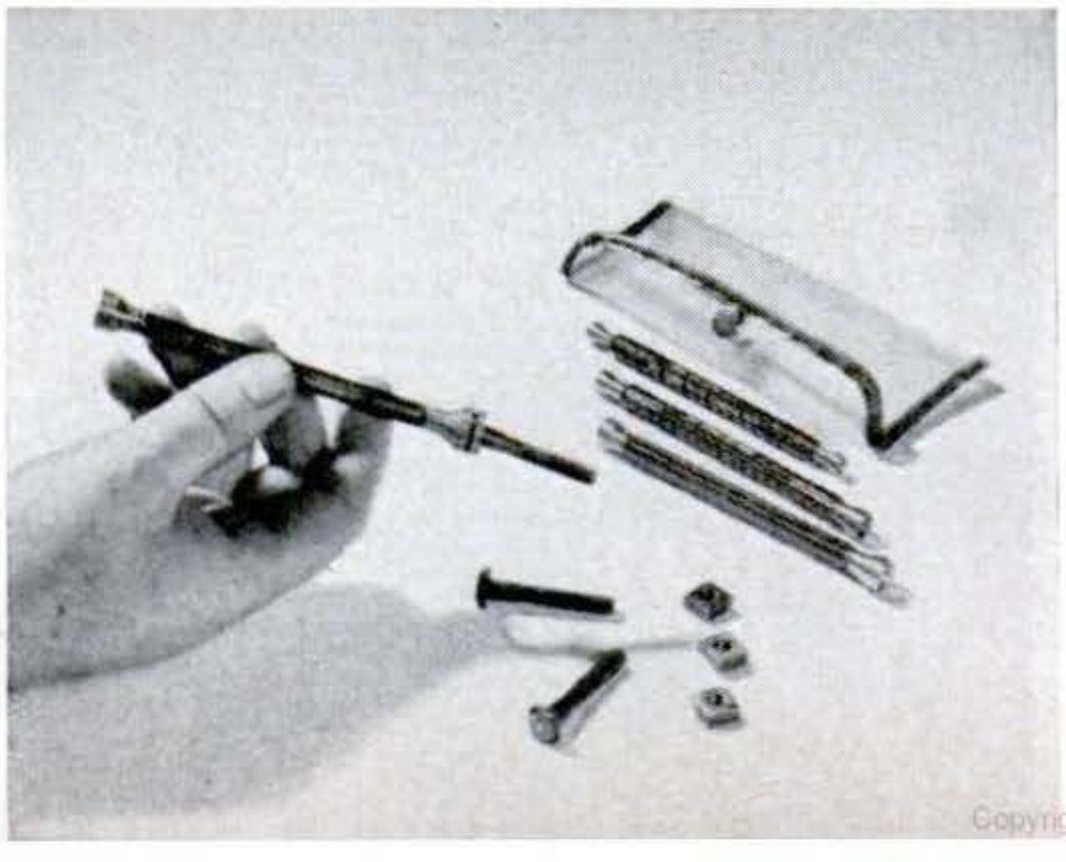
New Tools

2. Miter Makes Compound Cuts. Two protractor adjustments tilt this miter guide to both vertical and horizontal angles at the same time. The saw blade is held firmly to the guide by two permanent magnets set in the cast-aluminum frame.

3. Adapter Saves Taper Tools. Taper-shank tools with worn or broken tangs can be re-used with this spring-steel adapter. The coil body locks instantly around a tool, yet you can remove it easily with a twist in the opposite direction. The adapter is available in sizes 1 to 5 to fit drills, reamers, end mills and other tools that have Morse-taper ratios from 1:2 to 5:6.



4. Holders Start Nuts. Starting nuts or bolts in hard-to-reach places is easy with these extension holders. Spring-wire cups at the ends of each rod grip square or hex-head nuts until they're threaded on, then pull off easily. The set of four holders takes eight sizes of metal, plastic or fiber nuts from 3/16″ to 7/16″.



Further information about the tools shown on this page can be obtained from: 1. C. C. Whittaker, 541 Briar Cliff Road, Pittsburgh 21, Pa.; 2. Alumintool Division, Bay City Foundry, 133 N. Avalon Blvd., Wilmington, Calif.; 3. Pilot Tools, Inc., 225 Lafayette St., NYC 12; 4. Bonney Forge & Tool Works, Durham and Meadow Sts., Allentown, Pa.

Copyrighted material

What You Can Do with Bamboo

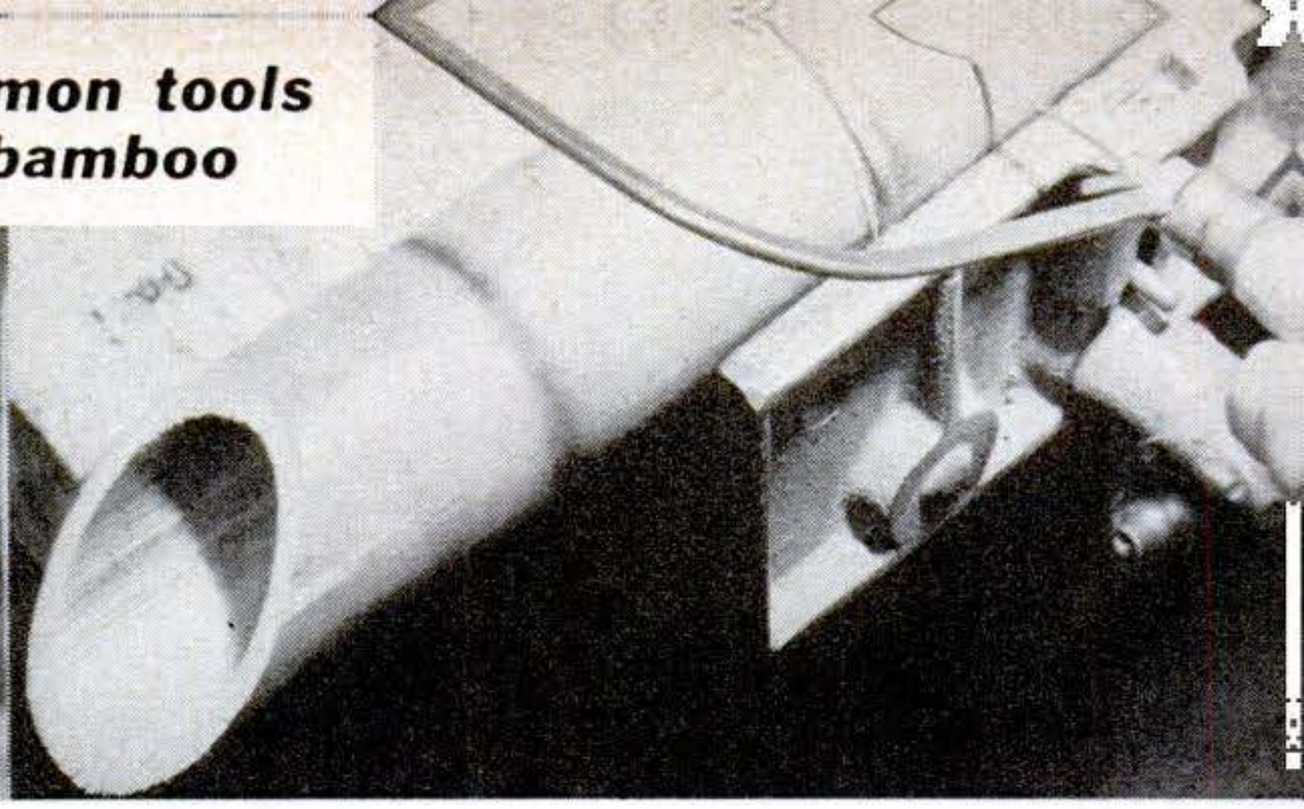
Nature supplies the shape and finish. All you do is split and slice the stuff into tables, planters and even drinking mugs.

By Jerry Parker

IN THE Orient, they use all of the bamboo but the rustle of its leaves. Where you live, it can be good for many things besides fishing poles and plant stakes.

As a change of pace—and also to show how versatile you can be—you might try making a few things out of this surprising material. From drinking mugs

Use common tools to work bamboo



HACKSAW WORKS FINE for crosscutting bamboo. But be sure to ease up on pressure toward the end of the cut to avoid ragged edge.

CUTTING CURVES or notches is easy with a coping saw. For most projects, cuts are made on either side of the ringed node sections.

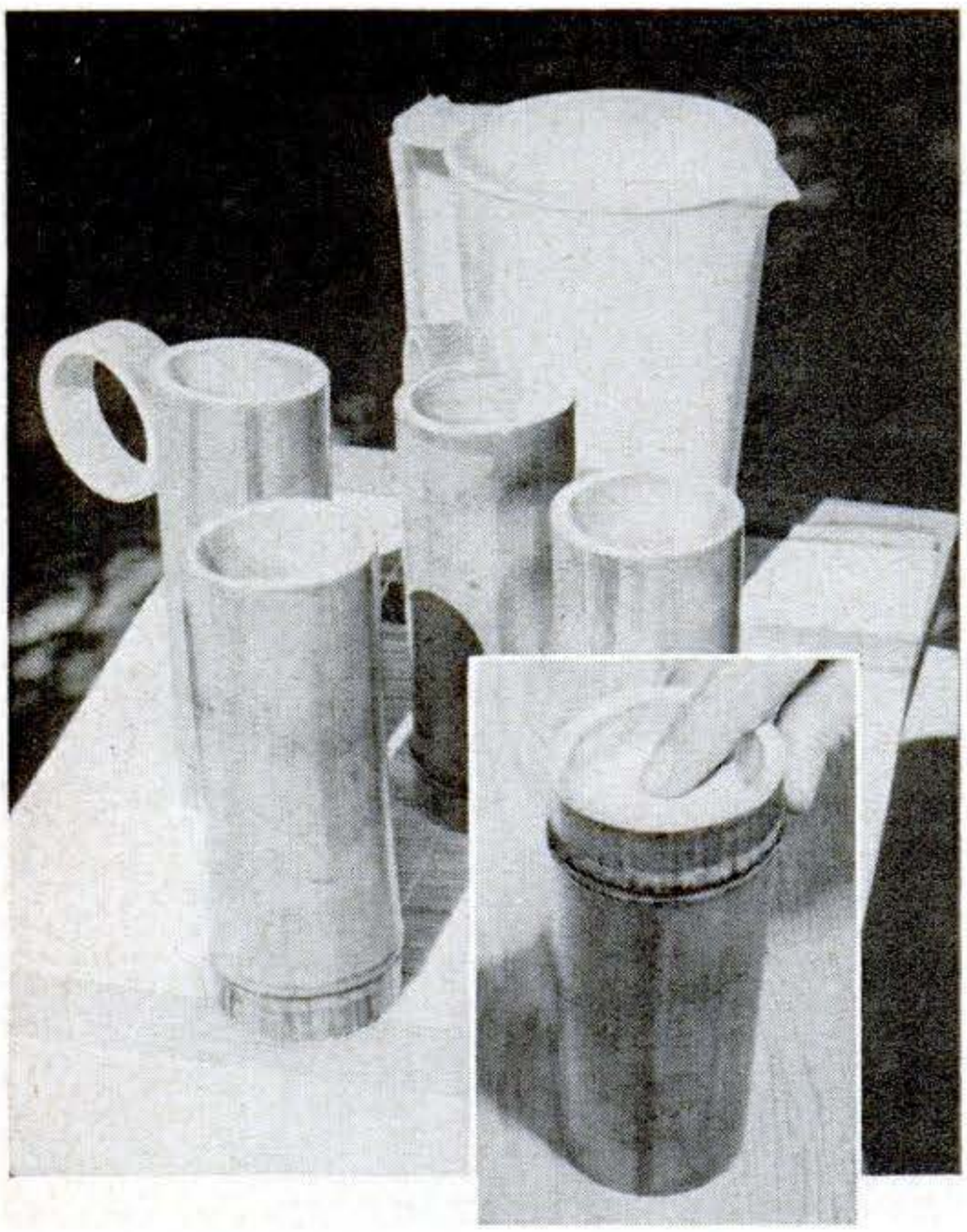
to picture-window trellises, they'll be different from anything else you've done.

The finish grows on it. Workshop-wise a handsome hardwood, tough and immensely strong, bamboo is actually a relative of the grass family. Its hard, good-looking surface requires no finish, although you can paint, enamel or lacquer it with some very colorful results.

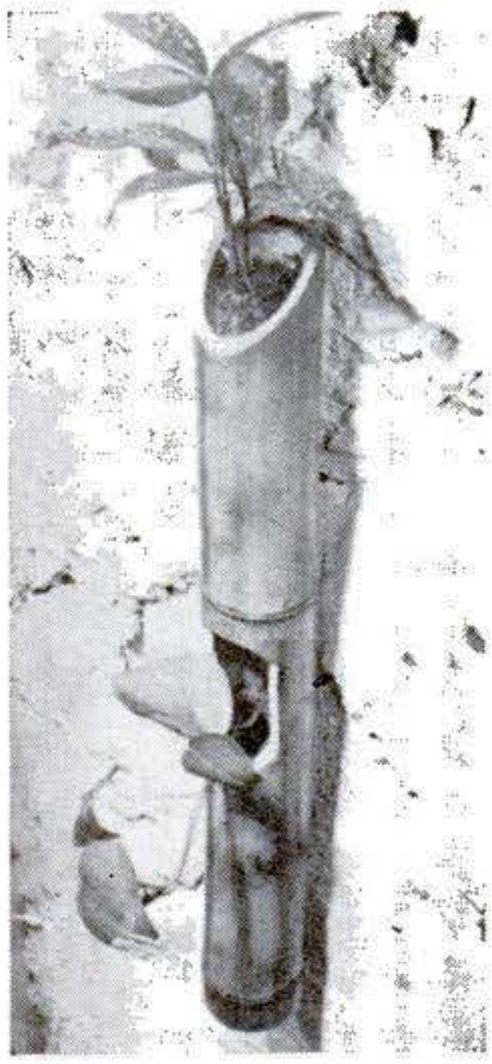
The poles, called culms, vary in diameter from ½″ up. One variety grown in Georgia is guaranteed two years against cracking and splitting. It comes in 6′ to 14′ lengths and up to 3″ in diameter. Prices run from 33 to 75 cents per foot.*

Imported bamboo ranges up to 5″ in diameter. Sizes up to 1″ can be bought from large garden-supply houses, which

**My source was Thomas Crandall, P. O. Box 204, Atlanta 1, Ga.*

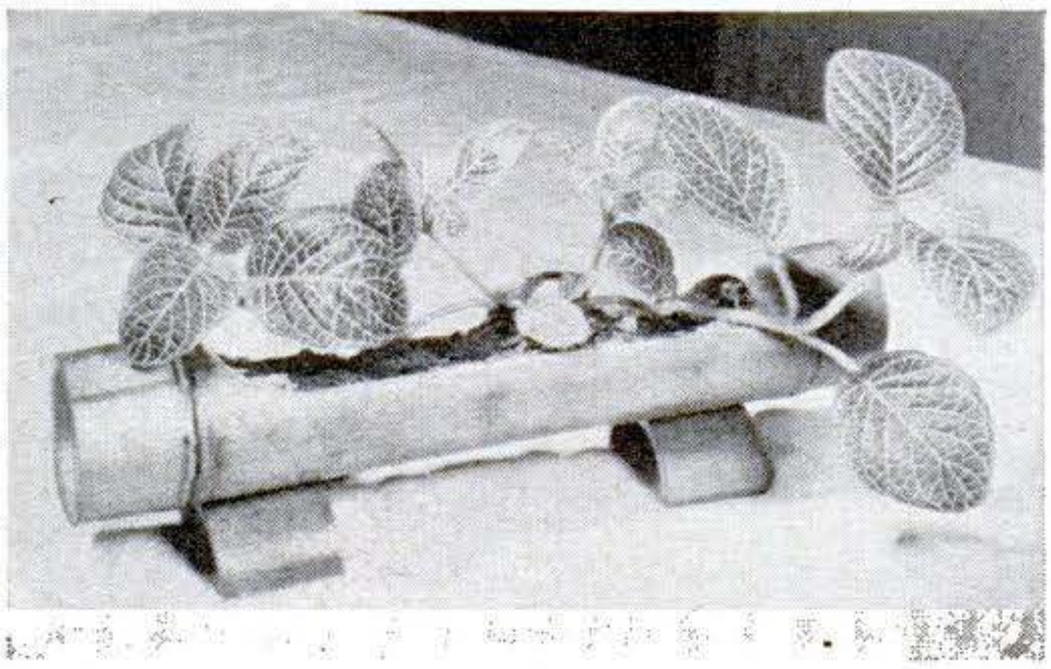


MUG BOTTOMS grow naturally. The nodes or cross walls between sections form ready-made bottoms for tumblers, mugs and vases. Cut a 2½″ or larger culm about 1″ below and 5½″ above a joint. A bamboo ring forms the handle. Sand the hard skin off joining surfaces and attach the handle with waterproof glue and a single small bolt, or with wire or cord binding. Bamboo vessels can be washed in hot water, but they should not be left to soak.

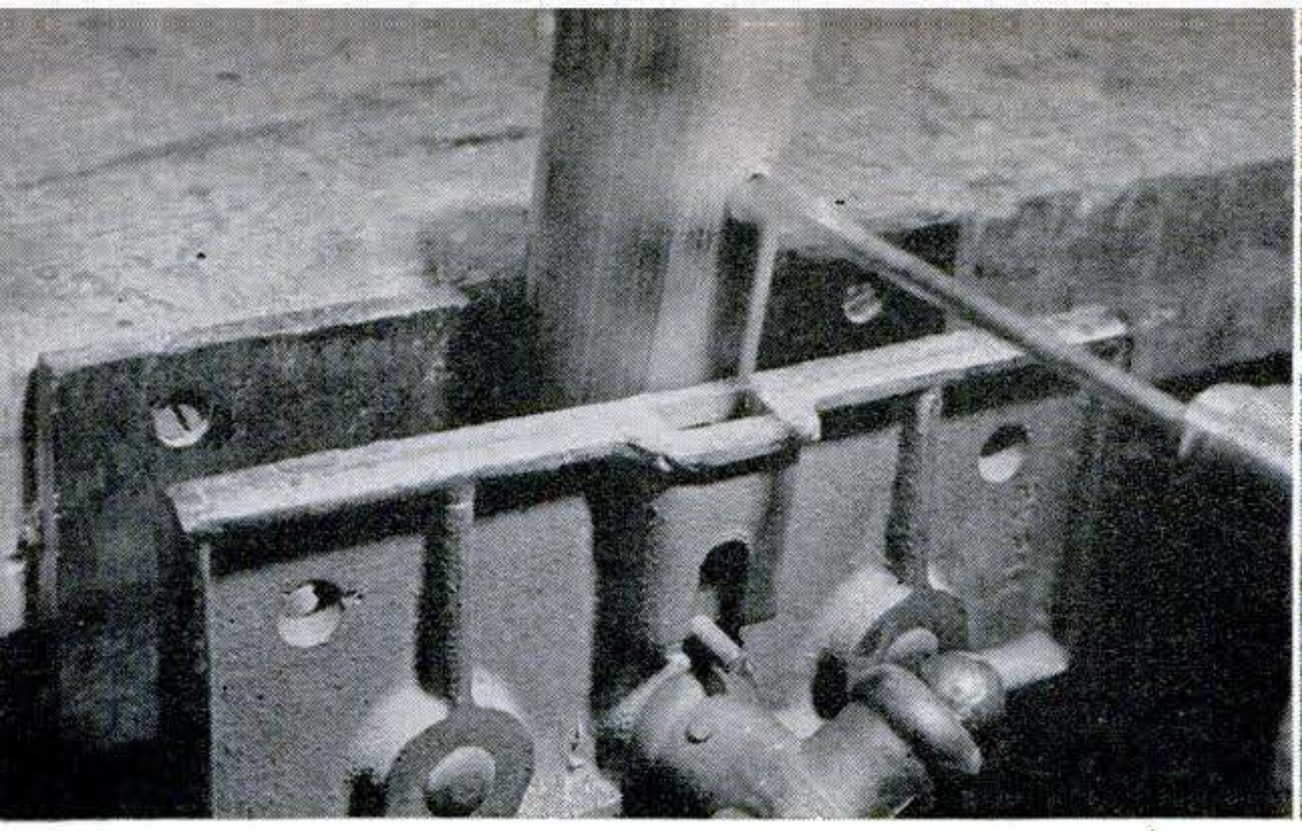


PLANTS ARE A NATURAL in bamboo planters; the finish blends with growing things. Use 2½″ or larger culm to make wall planter at right. Cut it at 45° about 5″ above joint. Just below joint saw a 3″-long notch for second plant. Leave nodes in at center and bottom to hold soil. For third pocket, leave on third section.

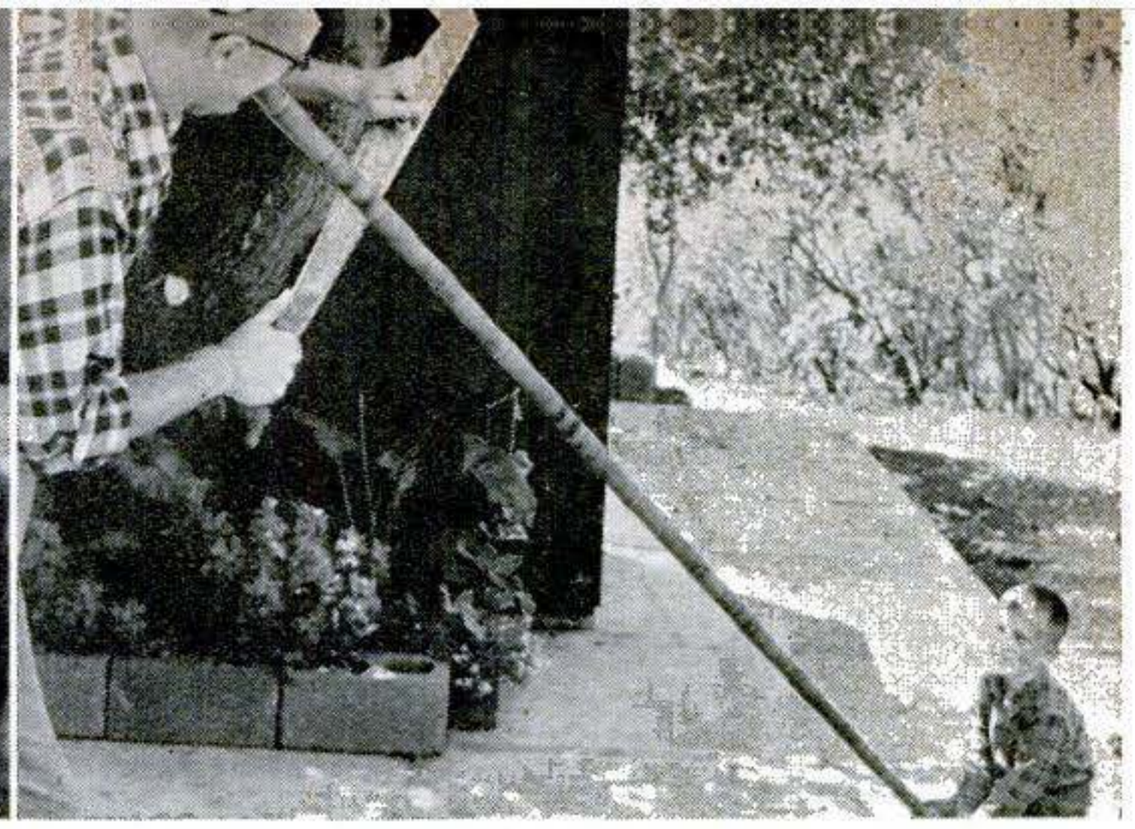
TABLE PLANTER is made by cutting outside two joints and sawing out long notch between. Keep nodes in to contain soil. For feet, split bamboo ring in half, attach with small bolt.



Copyrighted material



HARD OUTER SKIN calls for care in starting holes true. Use a flat or twist drill—but never an auger bit, which will split stock.



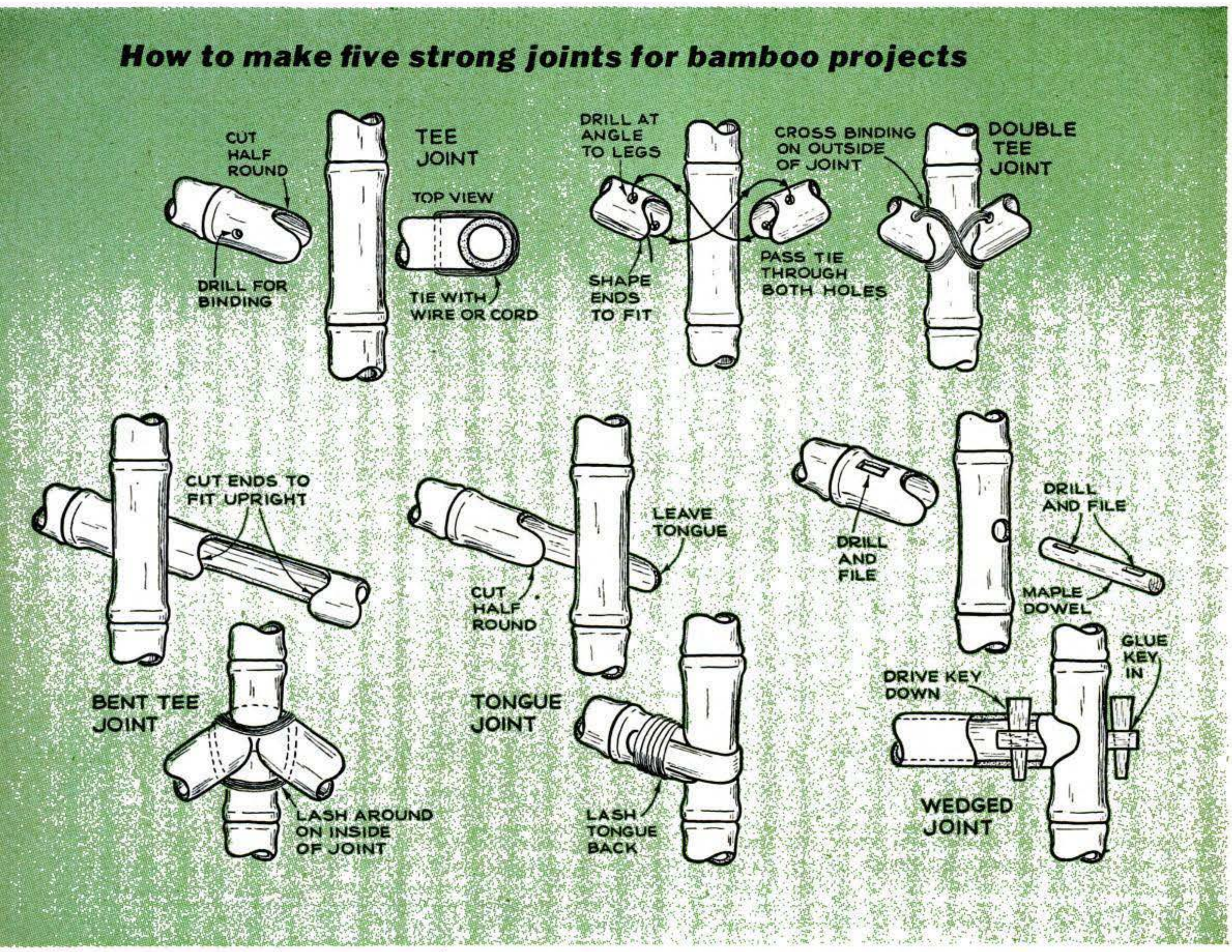
MACHETE IS HANDY for splitting culms, but a kitchen knife will work, too. Knock out the nodes first by driving in pipe or rod.

sell 4′ to 7′ poles as plant stakes, for as little as $2.50 a hundred.

Bamboo grows wild in many of our states, as far north as New York. If you have it in your own back yard, think about harvesting some for workshop uses. It will pay you dividends.

How to work it. The main thing to remember is to predrill holes in bamboo for nails as well as screws. If you don't, it will split every time.

You can take advantage of this for making half- and quarter-rounds, strips, molding and the like. First knock out the nodes—the pith walls between the ringed sections—by ramming a pipe or rod through the culm. Split by tapping a big knife through from one end. The



Copyrighted material

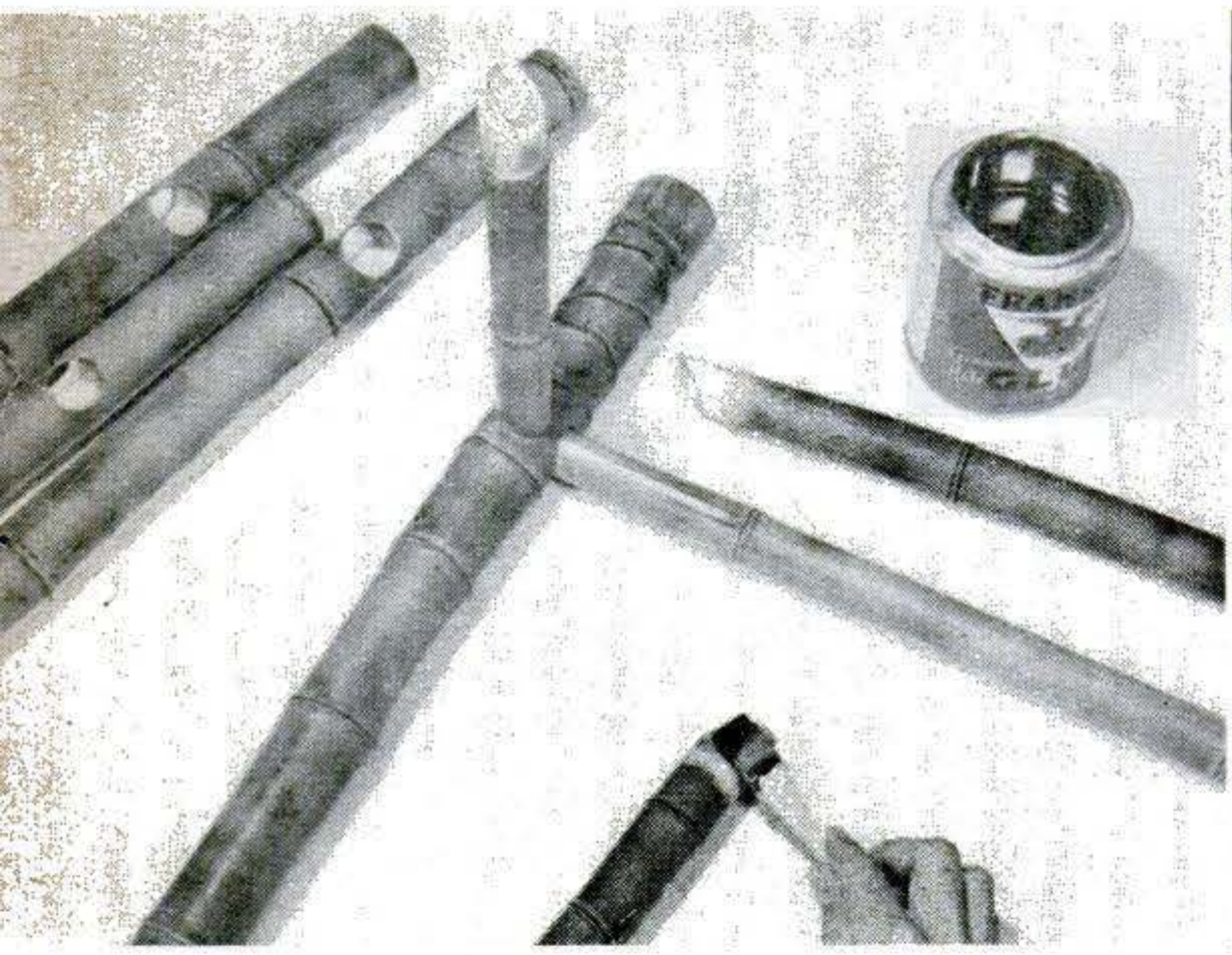
BAMBOO TABLE is ideal for patio, porch or informal serving. It requires no finish. Top is 1¼" pine, trimmed on edges with bamboo.

bamboo will part before it. Should one side start splitting smaller than the other, hold the small half straight and bend the larger away from it.

Use fine-toothed blades for cutting. Node sections can be reduced with sandpaper, rasp or plane. Save scraps for such desirable trifles as napkin rings, match holders, salad spoons and forks.

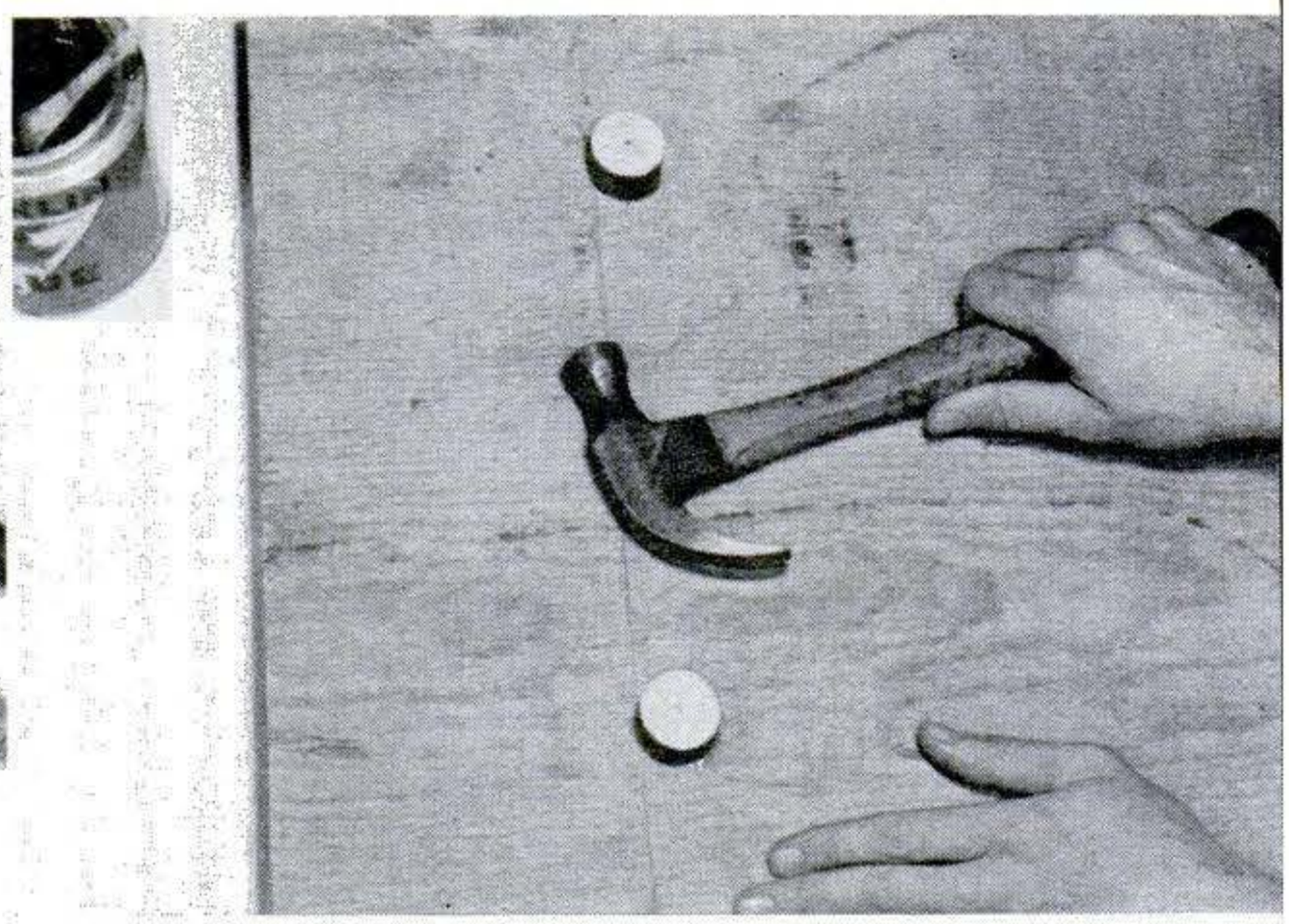
You can bend it. After knocking out the nodes, advises Walter Lutz, bamboo artisan of Cleveland, pack the pole with sand and heat cautiously over charcoal or a stove burner. Bend with gentle pressure, reheating if necessary. Plunge it into cold water to fix the curve.

Raffia, caning, plastic lacing, cord or wire are used to bind ends. Wrap the binding tight, push the end under, and secure with cement or an escutcheon pin in a predrilled hole. END



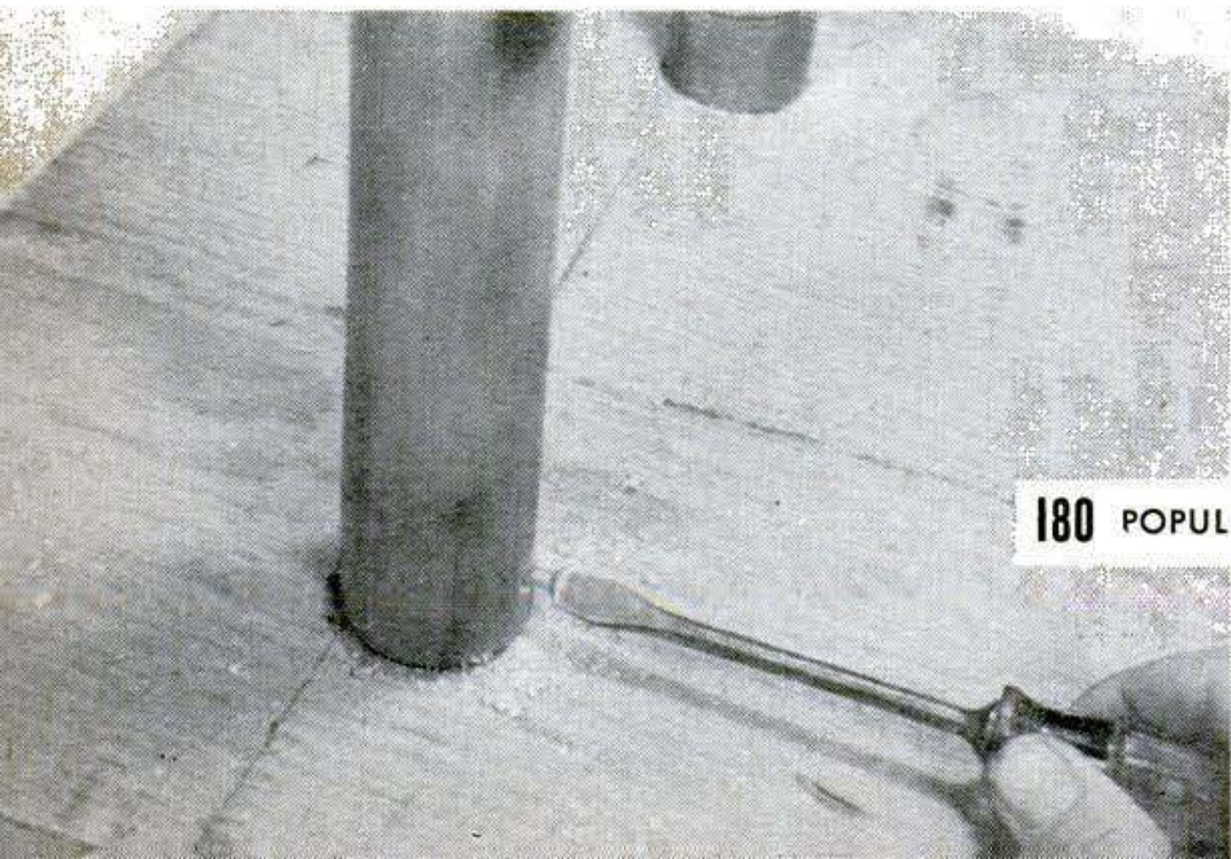
CUT FOUR LEGS 27" long from 2" or larger culms. Avoiding the joints, drill ⅞" right-angle holes for stretchers cut 48" and 12" long from 1" culms. Miter ends to fit together inside the legs. Rasp or sand the ends to a taper.

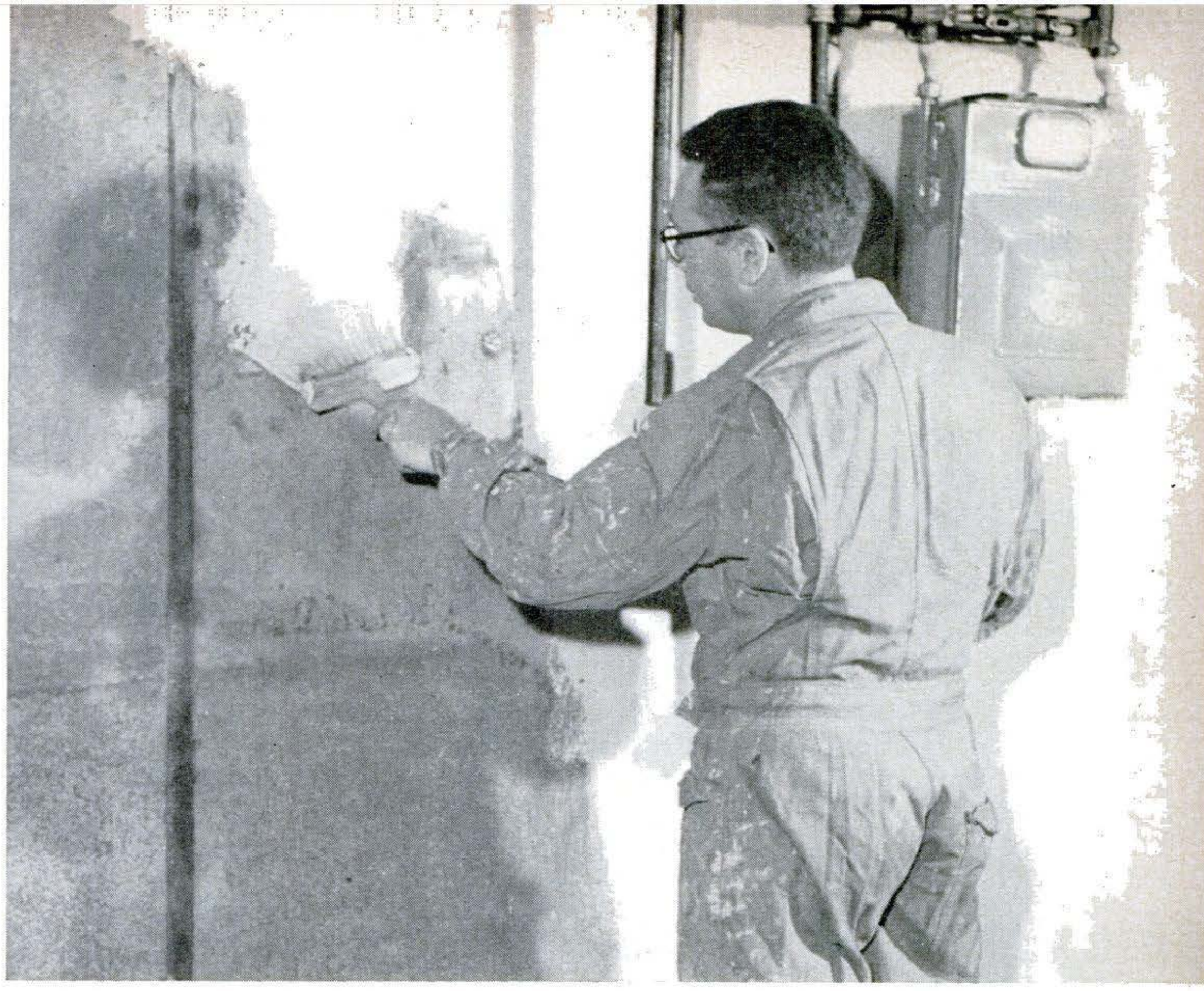
IN PREDRILLED HOLES set a slender screw in each leg to hold to dowel plugs which have been coated with glue before mounting. Lay out top for plugs with care so that they fit leg assembly and are spaced evenly at edges.



GLUE AND NAIL wooden plugs, cut from a large dowel or closet pole, to the underside of the 18"-by-60" table top. These should be same size as the inside diameter of legs for a snug fit. Make the plugs at least 1" long.

SPANISH WINDLASS, made by tying doubled rope around all four legs and twisting tight with short lengths of wood, serves as clamp to hold stretchers in place until glue has set. Table top, on floor, holds opposite leg ends tight.





New Brush-On Sealers Keep Basements Dry

Here's the inside dope on dampproofing your cellar. New masonry paints actually become part of the wall.

By Bernard Gladstone

TOUGH, new waterproofing paints let you seal moisture out of porous cellar walls with a brush. You can slap them on quickly, since there's nothing finicky about the way they're applied. And once up, they actually become a part of the wall.

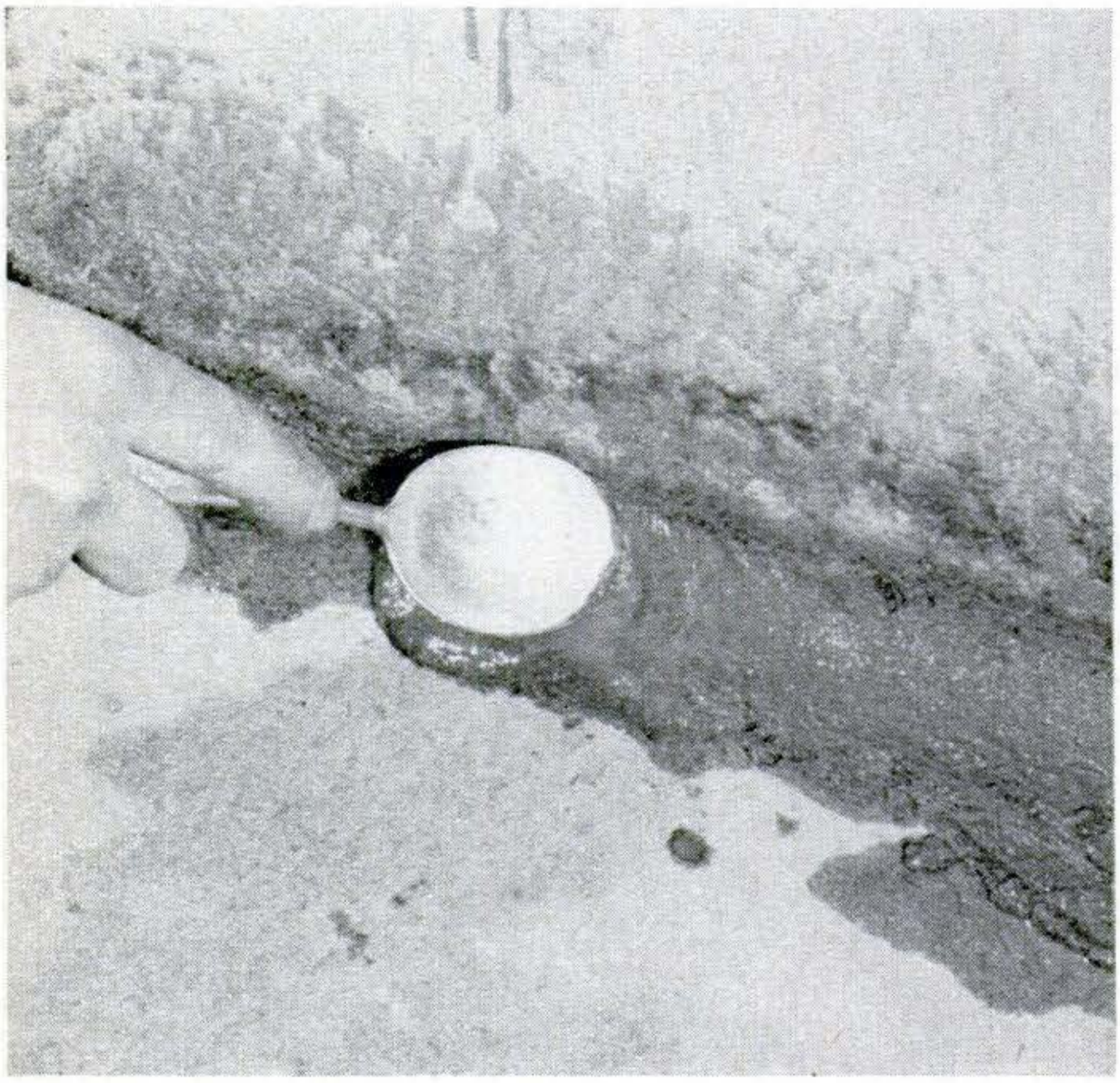
For unusually serious water conditions, you can use the sealers in combination with a plaster base. For open cracks, there are new hydraulic cements that will plug up a hole while water's still run-

Copyrighted material

ning through it. The new sealers are called heavy-duty cement-base paints, and when you buy them make sure that you get the type that is specifically designed for waterproofing. Not all cement-base coatings are.

These paints come in powdered form and are mixed with water just before use. While they're normally applied as a thick coating, you can mix them to a plasterlike consistency and trowel them on.

If your walls are just damp because of an over-all seepage, the chances are that two brush coats will do the trick. But where you can actually see water dripping down over large areas of wall, you'll probably need one heavy trowel coat, followed by one brush coat.



USE A SPOON to force hydraulic cement in crack between wall and floor. Chisel out fine cracks enough to let cement in.

Walls must be clean. To provide a good grip for the sealer, your masonry surfaces must be clean, dry and porous at the time you paint them. If they have already been treated with anything other than a cement-base paint, the pores may be too tightly sealed to let the new coating penetrate.

You can run a quick test by slopping on some water. If it seeps in and wets the wall, you're all set to go. But if it just runs right off, the old surface will have to be removed first.

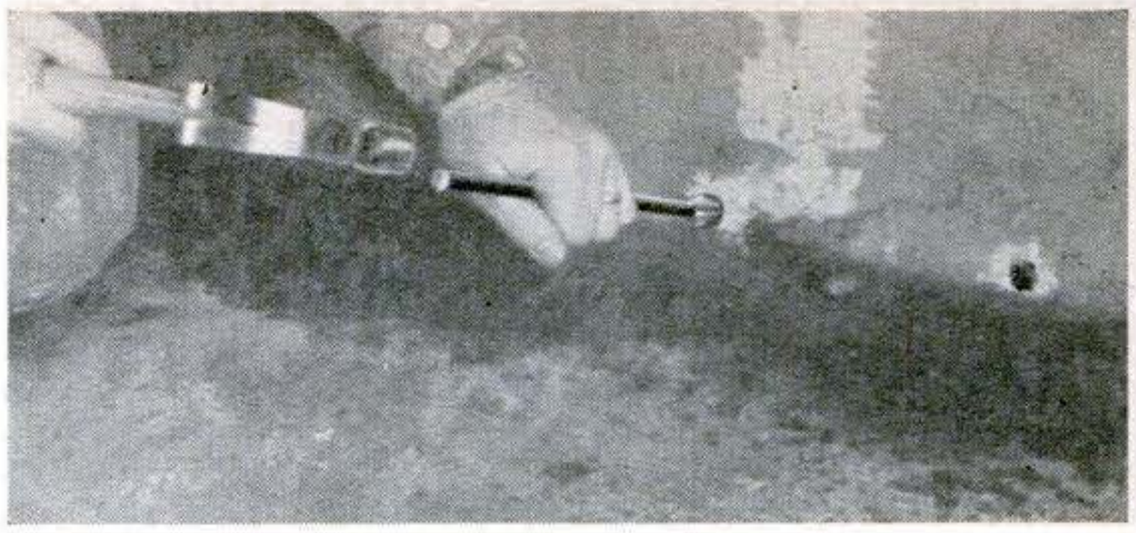
For oil paints, use a no-wash, semipaste remover, one that contains no wax and preferably one of the water-soluble types. Flow it on with a large brush, allow the paint to soften, and scrub it off with a wire brush and some mineral spirits. Then wash down the wall with a hot solution of trisodium phosphate and rinse with clear water.

For whitewash and other water-mixed paints, use muriatic acid, the wire-brush treatment, and the same bath of trisodium phosphate. You can get the phosphate at paint stores under the name of beetsol. Mix about five pounds with each gallon of water. These chemicals don't take kindly to eyes or skin, however, so wear goggles, gloves and a long-sleeved shirt, and wash up thoroughly afterward.

Patch cracks first. Before you start applying the sealer, all holes and cracks should be tightly plugged with one of the new quick-setting hydraulic cements. These come as a powder and are mixed

Copyrighted material

with water to a stiff puttylike consistency. After all openings have been patched, spot-prime them with a little of the same coating that you will use on the walls.



DRILL WEEP HOLES to drain water at base of wall. Use star drill or masonry bit in portable drill.

Where water is seeping right in through the masonry, the pressure must be relieved behind the wall by drilling weep holes along the bottom. After the water has drained out, you can seal the wall and plug the holes with hydraulic cement.

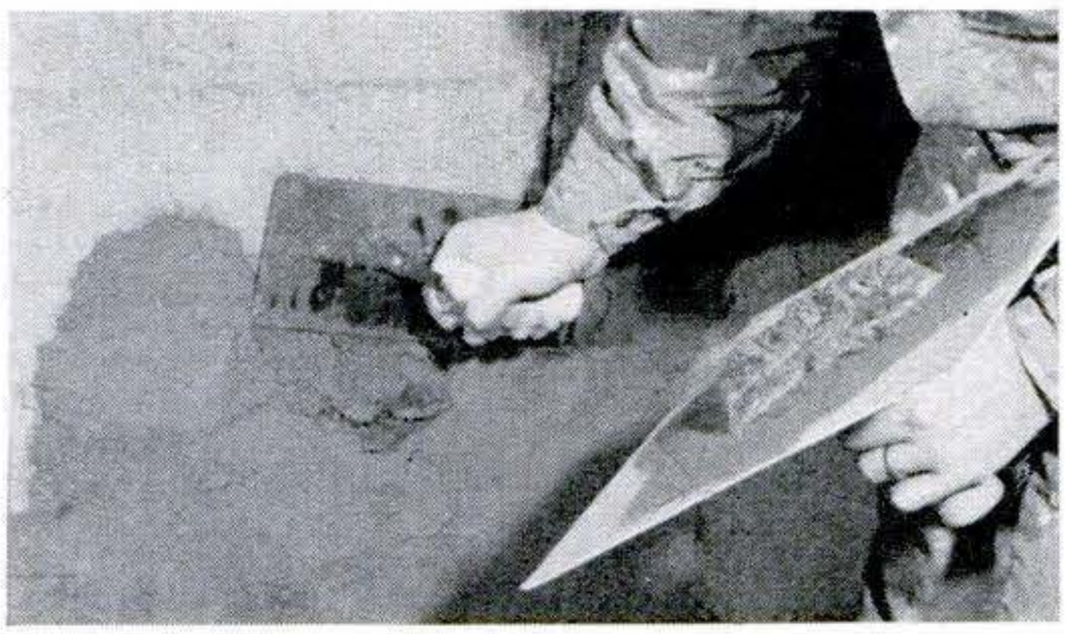
Sealer goes on quickly. Just before you're ready to start, wet down the wall with a fine hose spray to help draw the coating in. Also keep a pail of water and brush handy so that you can remoisten any spots that dry out before you get to them.

Mix only as much paint as you can use in an hour or two, since it sets up rapidly. Work it well into all cracks and pores, but don't fuss about brush streaks or lap marks—there won't be many.

Before you put on a second coat, read the directions on the particular brand you have bought to see how much drying time is required, the correct proportions to use, and whether the coating needs to be kept damp while curing.

Plastering bad walls. Some walls may be so porous, cracked, crumbly, or otherwise defective that even the new heavy-duty coatings won't hold back the water. You can often solve this by replastering the walls before adding the sealer.

Since this means more work, try the sealer alone on at least one wall first to see what happens. And if you do decide to plaster, try that, too, on one wall before you undertake the entire job. If the wall is wet at the time, use the same system of drilling weep holes, only drive in short lengths of pipe to keep them open as you plaster around them.



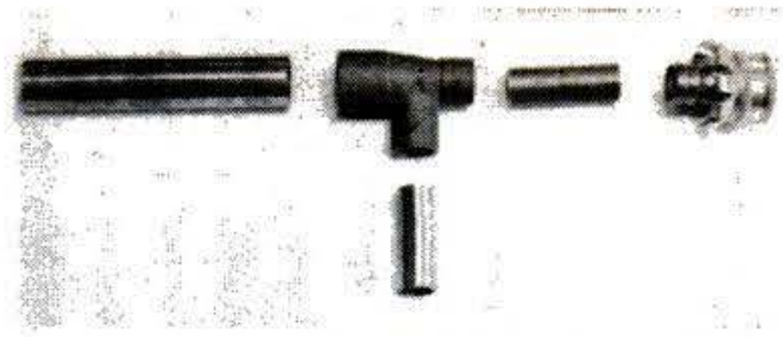
PLASTER BASE seals bad walls. Mix sand and cement two to one, trowel on two ⅜" coats.

Keep the inside dry, too. Many wet basements are made even wetter by warm, moist air that collects inside and condenses on the walls. Vent clothes dryers to the outdoors.

If you have a shower, darkroom or other source of moisture, it can be vented with an exhaust fan. Cold-water pipes that "sweat" should be wrapped with special insulating tape.

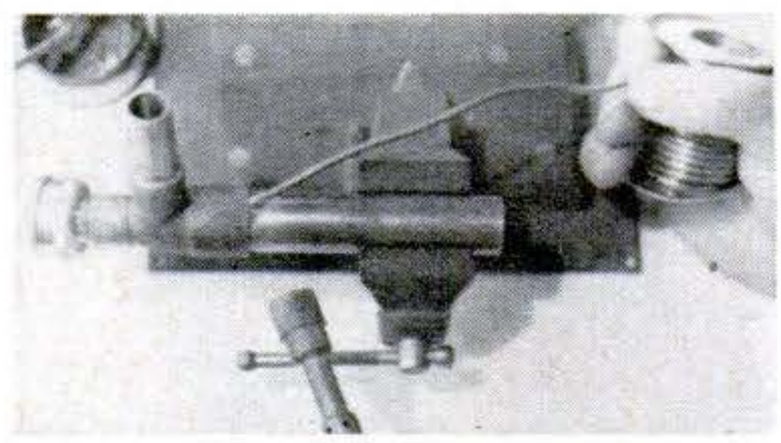
If you still have a lot of condensation, you can get inexpensive chemical dehumidifiers at hardware stores that help absorb moisture. Or you can try to get your wife to stop hanging wet wash in the cellar—but that idea may not work. END

Copyrighted material



THESE ARE THE PARTS you need in addition to hose. Body of pump is a ¾"-to-½"-by-½" reducing tee. Discharge nozzle is a 4" length of ¾" copper pipe. The female hose coupling is connected to 2" length of ½" copper pipe, and the suction side connects to a similar piece.

REMOVE CLAMP RING from the hose coupling by prying or snipping it off. Then saw the hollow stem to ½" in length and slip it over the end of one 2" length of pipe. Bore or file out the small end of the tee until this pipe can be pushed all the way through.

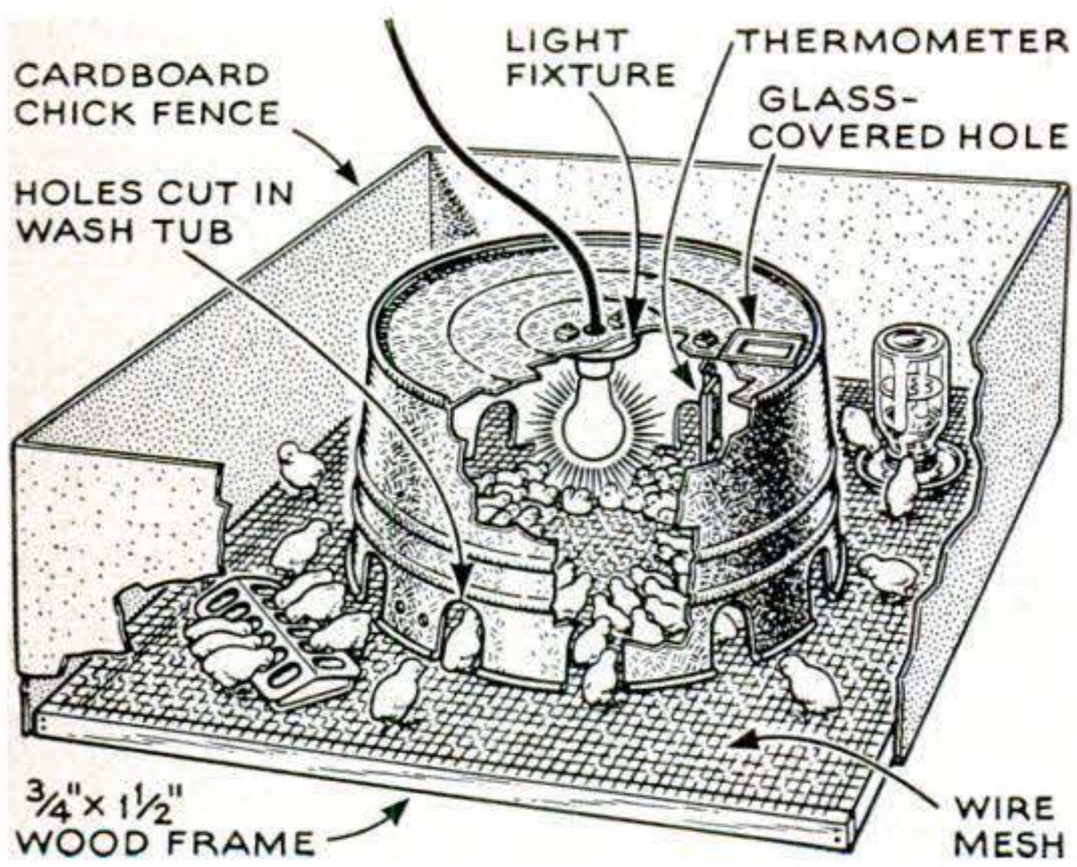


CLEAN ALL OPENINGS of the tee with steel wool. Push the jet tube with the hose coupling in past the cross opening until it just enters the ¾" section. Then heat and flow solder into all joints. Push an 18" length of hose over the side pipe for the suction line.

Homemade Jet Pump Empties Pool

CHANNELED through a few pipe fittings, the flow from a garden hydrant can raise water from another point. Its velocity creates a partial vacuum, and atmospheric pressure does the rest. You can use such a jet pump to drain a wading or garden pool and to draw out sand and dirt from the bottom. Average line pressure will pump about 3 gal. per minute to a height of 2′.

Turn the water on full force. Prime by blocking the discharge with your thumb and backing water into the suction line. Release your thumb, and the pump goes to work.—*Elbert Robberson, Port Washington, N. Y.*



You Can Raise Chicks in a Tub

FOR raising chicks on a small scale, this wash-tub brooder is a money-saving substitute for commercial equipment. An electric lamp provides heat. The size of the bulb needed depends upon the number of chicks and the prevailing outside temperature. Between 90° and 98° is usually recommended for the first month. Wire mesh over a wood frame makes cleaning easier.—*Victor H. Lamoy, Upper Jay, N. Y.*

▶▶▶You can reach the oil hole of an exhaust fan without removing the grid if you slip a drinking straw over the spout of a small oilcan.—*Martin Koenig, Brooklyn, N. Y.*

Copyrighted material

ACCESS TO TRUNK without unhooking outboard is important, makes picnic things readily available to the missus. Angle at which motor rides keeps residual water out of power head.

My Outboard Rides on The Bumper

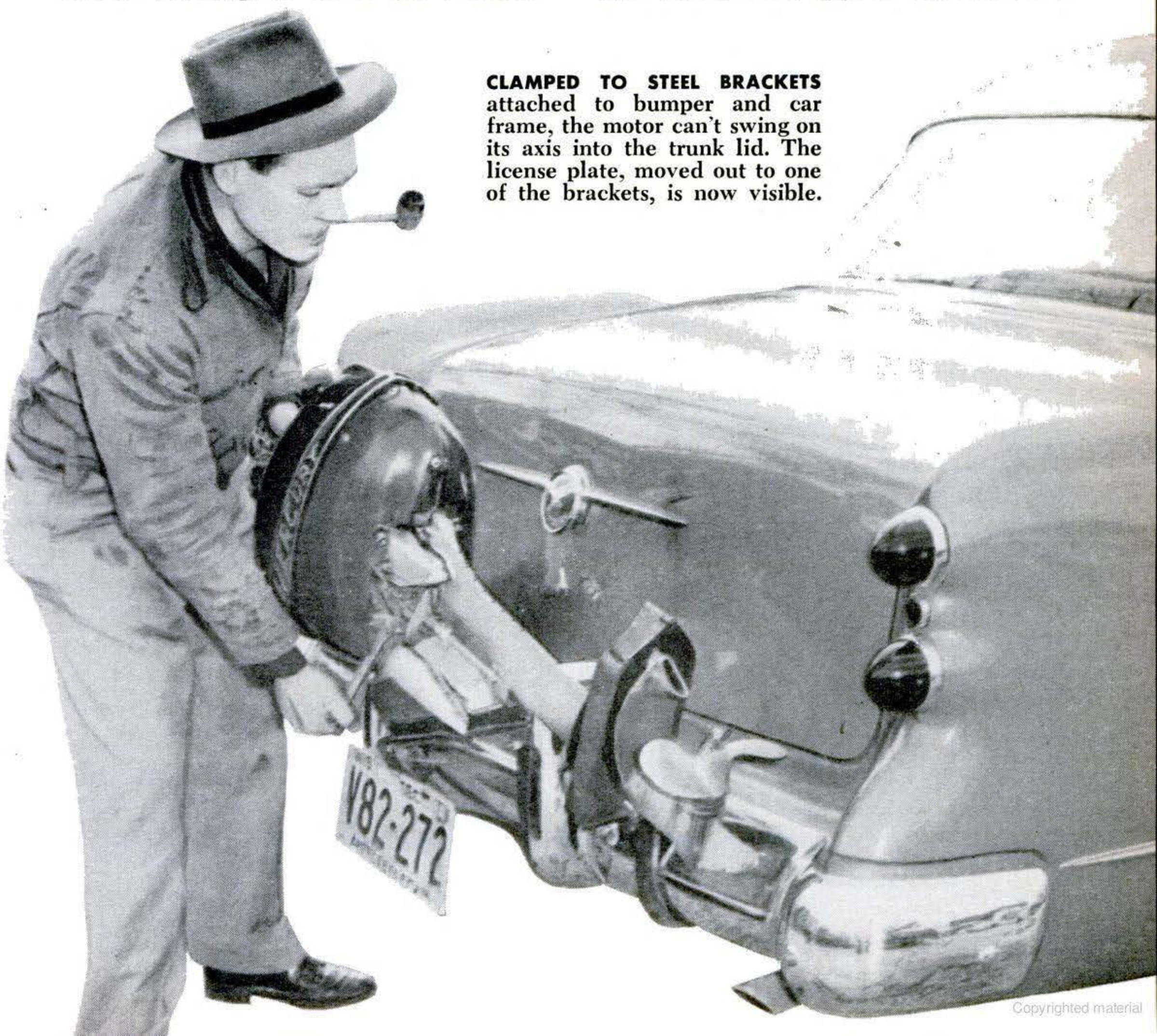
An afternoon's work will put your oil-dripping outboard where it can't hog valuable space, or mess up or gouge your luggage.

By. E. F. Lindsley

YOUR car trunk is no place to haul a bulky outboard. A bumper bracket solves the problem.

Before starting to build the bracket shown in these photographs, I slung my motor on a rope to the garage rafters to get a picture of how it might ride best. I tried it upright, horizontally and finally at an angle.

Two faults were apparent at once with



CLAMPED TO STEEL BRACKETS attached to bumper and car frame, the motor can't swing on its axis into the trunk lid. The license plate, moved out to one of the brackets, is now visible.

Copyrighted material

the upright position. I couldn't carry the motor too low or the propeller and skeg might drag bottom as I started up a steep drive—or piled through a rutted backwoods road. If I shoved it up, there was no easy way of bracing to keep it out of the rear window in case of a sudden stop.

Slinging the motor horizontally looked better. But this had the same drawback as hauling it on its side inside the car—water left in the lower end could sneak into the highly polished cylinders.

Finding an angle. Finally, I tried cocking the motor up at an angle with the business end somewhat up in the air. That not only licked the water problem, but helped sneak the shank around the bumper guard.

The bracket can be built in an afternoon. I welded the joints, but rivets or bolts can be used. Just be sure the mount is husky enough to carry your motor.

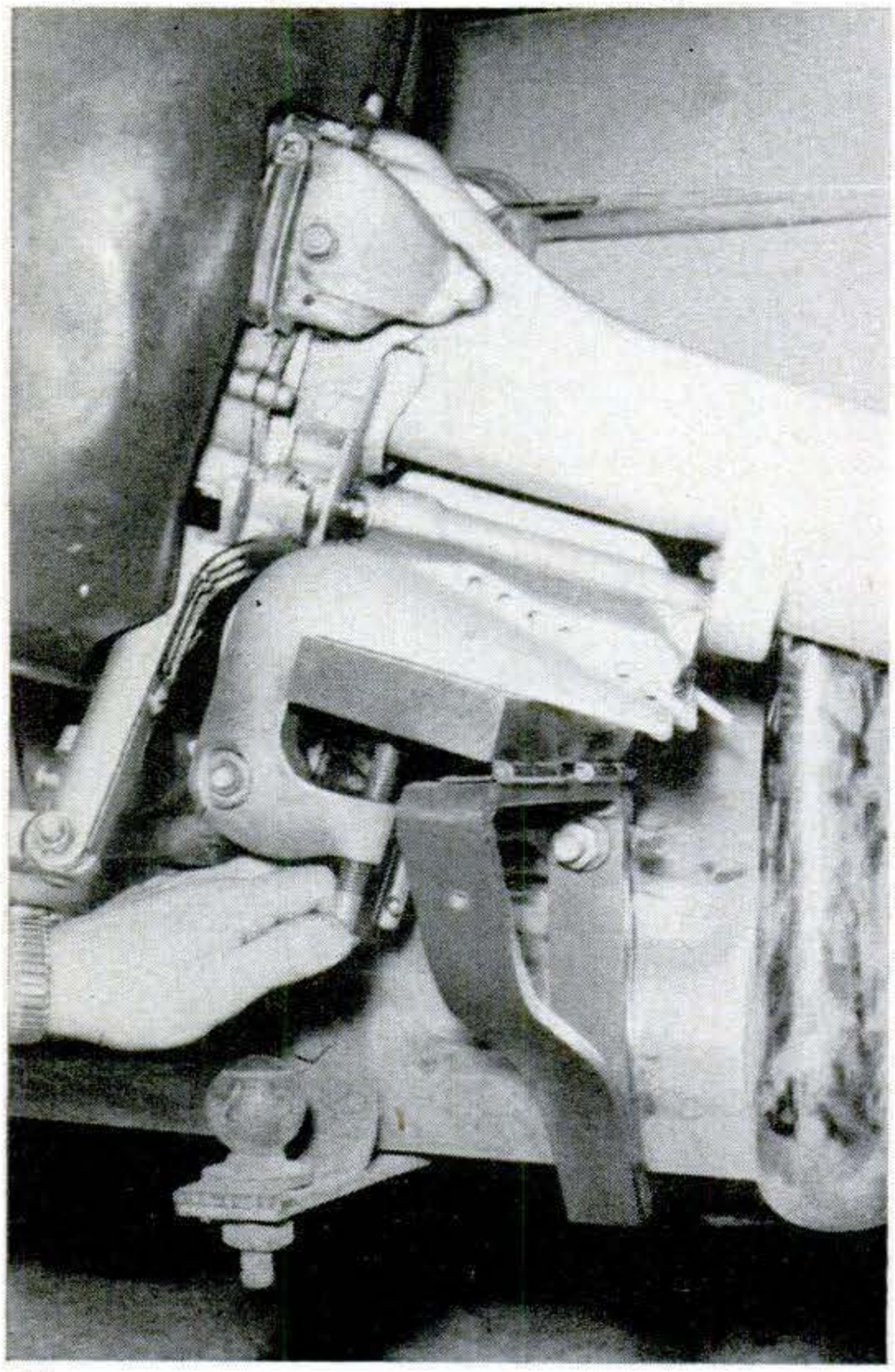
The first rig I made was constructed of ⅛″ strap iron and latched onto the bumper like some light-duty trailer hitches. The result scared me. Every time I jiggled the motor, the bumper twisted and flexed like a lizard's spine. One thing was certain. If I should hit a chuck hole or lake-country trail, that heavy motor would build up a whopping load of inertia.

So I made another mount. Maybe the ⅜″-by-1½″ steel looks heavy, and tightening the bolts on the rear frame member may soil your clothes, but it's strong enough and it works.

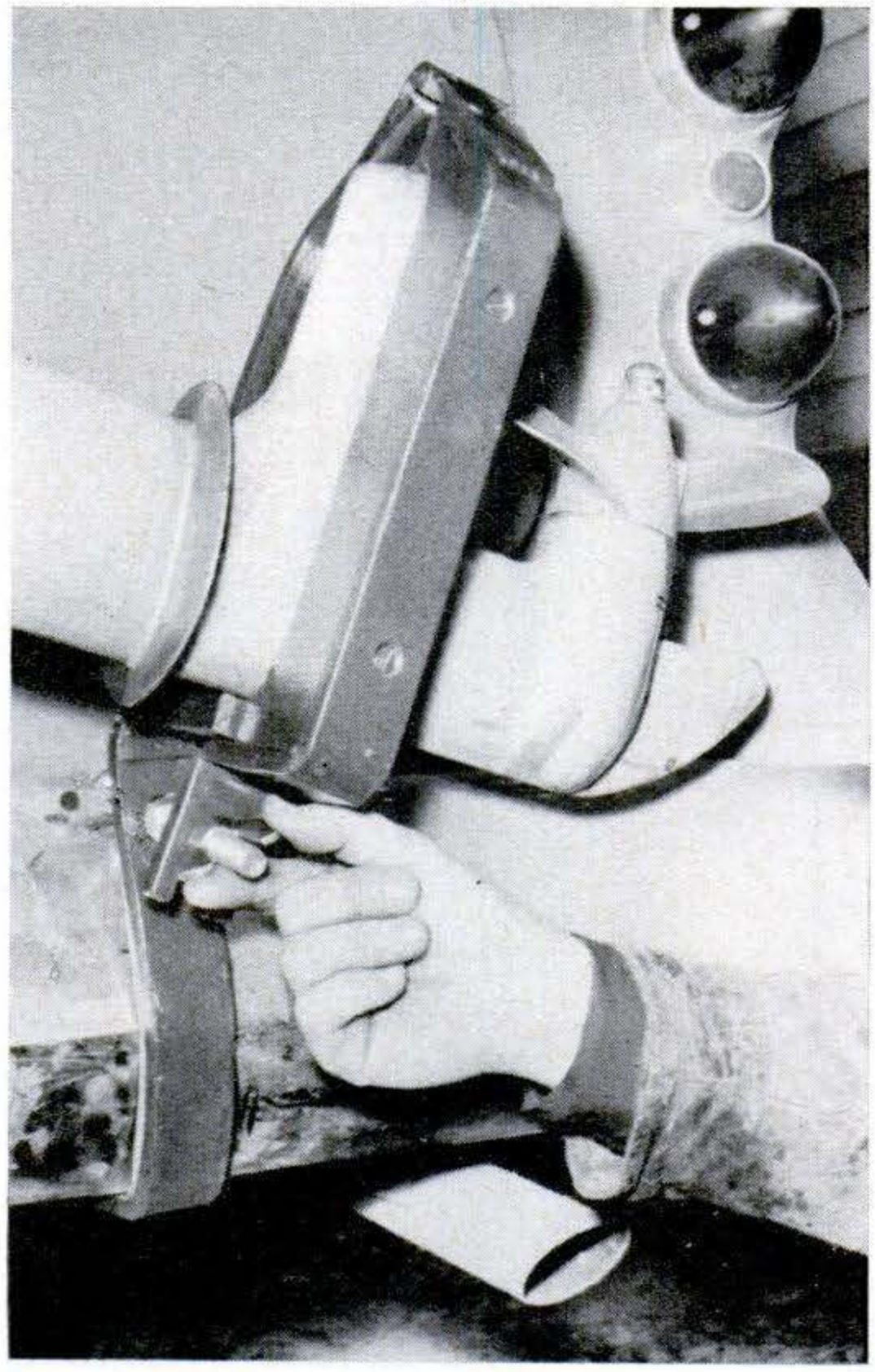
Forming the mount. To bend the steel I used a vise, an overgrown monkey wrench, and a blowtorch to soften it up. If this seems too rough, the local blacksmith can do it in a hurry. The hinges can be the cheap chicken-coop variety.

Don't sell yourself short on the clamp bolts that secure the support brackets

MOTOR CLAMPS hold on hinged hardwood block as they do on boat transom. The closer you can mount unit without interfering with trunk lid, the less leverage you'll have on bumper.

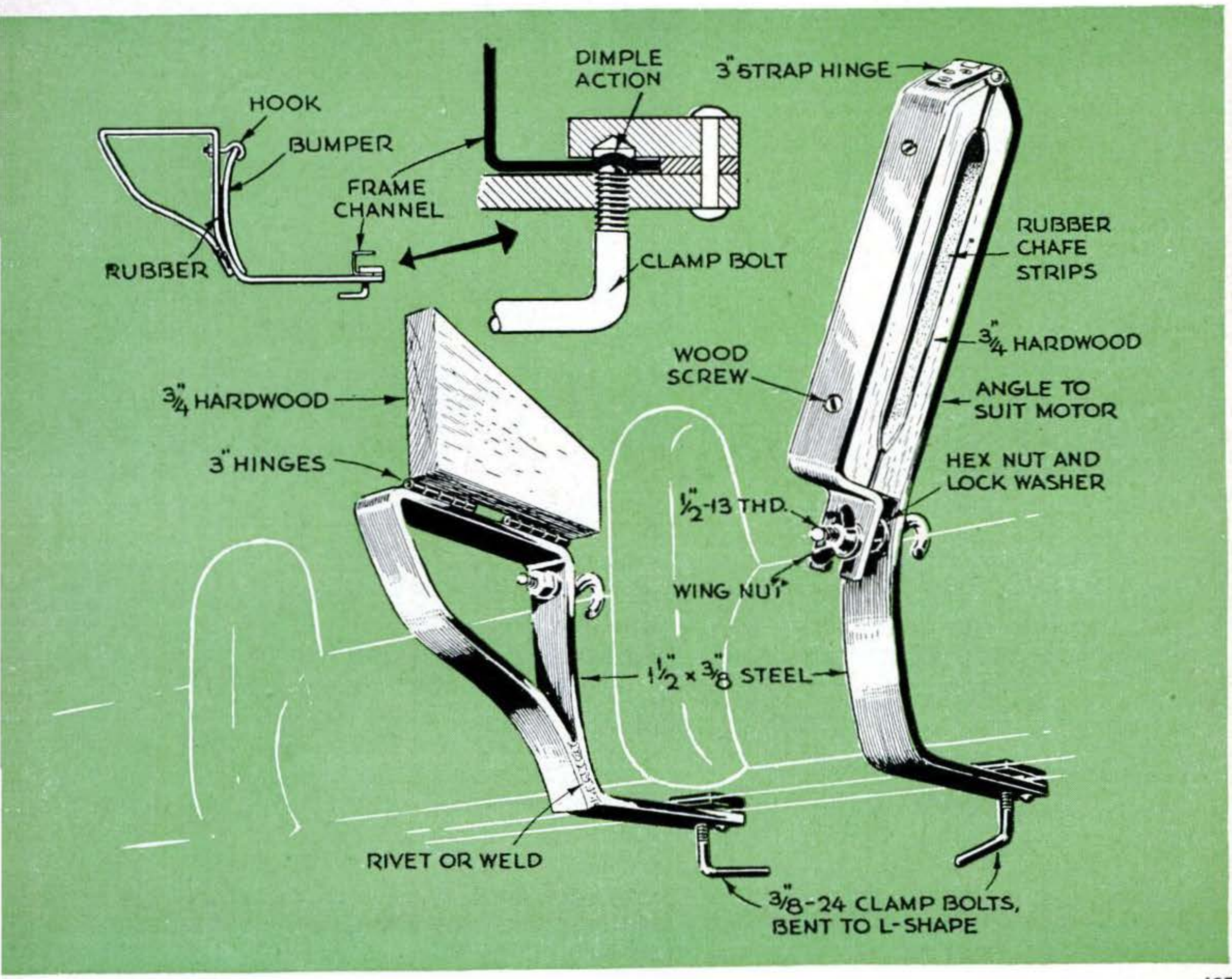


OUTBOARD FIN is locked to carrier by clamp held with wing nut. Wood insert, contoured to shape, is lined with inner-tube strips as are all metal surfaces contacting chrome.



Copyrighted material

BOLTS clamping carrier brackets to the car frame must be pulled up tight against the frame cross member. This absorbs road jolts and prevents twist on the bumper.



Copyrighted material

ALMANAC
FOR MOTORISTS

Pithy proverbs, provident counsel and omens and portents of interest to horseless-carriage operators.

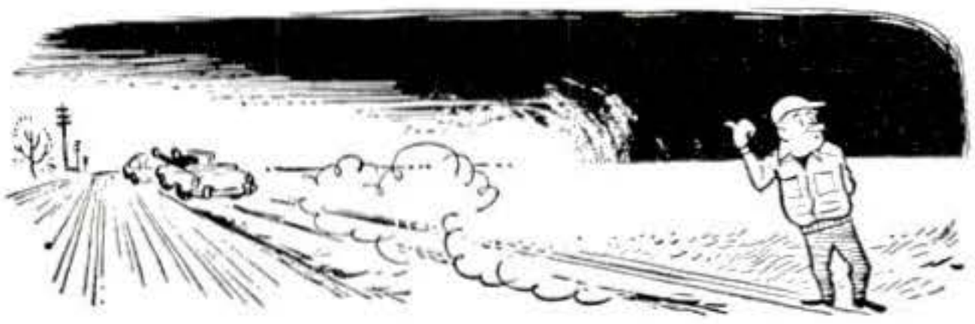
▶▶**If all the people** who, in the course of changing a flat, discovered that the spare itself needed air, were laid end to end, there'd be an awful lot of people lying around.

▶▶**When the car is washed,** there is often a powerful temptation on the part of the proud owner to "get out the wax and shine her up." Resist it—finish experts say you should always use a cleaning polish on a car before waxing it.

▶▶**Is there a canary** in your engine? First places to look in chirp-hunting are the generator and water-pump bearings. If they are silent, see if the distributor cam needs a dab of petroleum jelly.

▶▶**Says the Saturday-Morning Mechanic:** "A pile of troubles 'looking for a chance to happen' can be headed off by a look under the hood. You'll see wires that may chafe, filling sediment traps, weeping gaskets, and the loose air cleaner that makes that alarming knock."

▶▶**Aside to hitchhikers:** Get out and walk if the man who picks you up is an angry driver, bent on "teaching that slob ahead a lesson." Blowups can be as risky as blowouts.



to the frame. I bent a couple of husky bolts into an L shape, and drilled and tapped the strap. If your car is shaped a little differently at this point, you may have to cook up a variation, but be sure you get a good, solid grip on the frame. These clamps take the twist off the bumper, and tie bumper and frame together for rigid support.

The jaw gimmick that clamps on the fin at the lower end of the outboard has a wood insert held by screws and lined with rubber. If you want to switch from one motor to another, it's a quick job to hew out a new insert to fit the new motor contour. In a pinch, I've taken out the wood, wrapped the fin with cloth to fill up the space, and locked the jaws down tight. These jaws are important since they keep the motor from swiveling and slamming against the trunk.

It wouldn't have been too hard to bend up a couple of hooks to hold the brackets to the bumper, but the garden variety of porch-swing and clothesline eyebolts go for 15 cents. By sawing off a quarter of the eye they do fine.

Cautions. Just to satisfy John Law, it's probably a good idea to hang the license plate where it's more or less readable. It's also probably a good idea to check your state's legal restrictions.

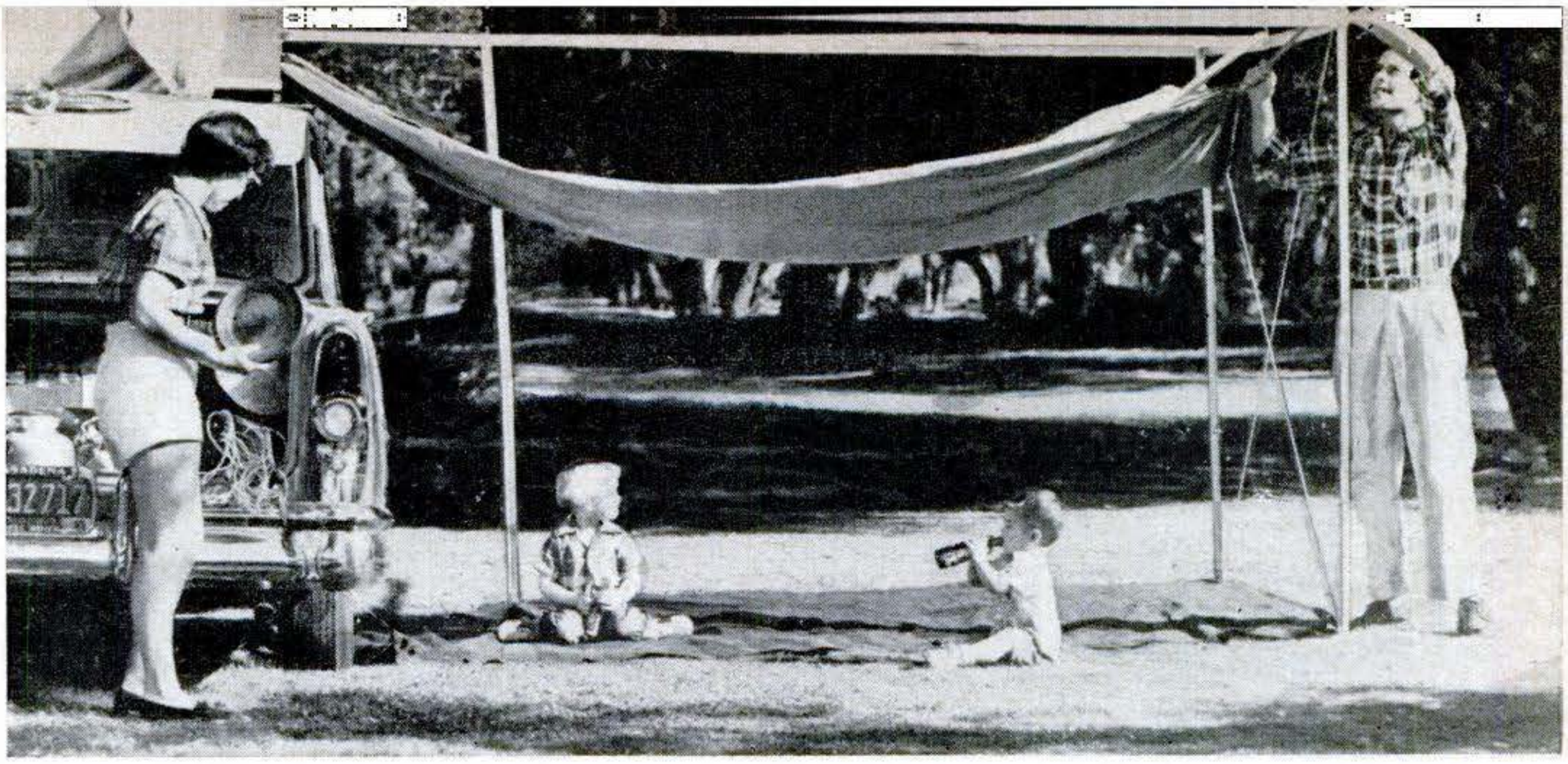
The only other problems are backing into trees and keeping tail-hugging drivers from sucking your outboard into their grilles.

If you drive a lot in bad weather, or are plagued by dusty or muddy roads, a worth-while addition would be a canvas cover to cloak the rumble-riding outboard against the elements. END

Enameling Old Surfaces

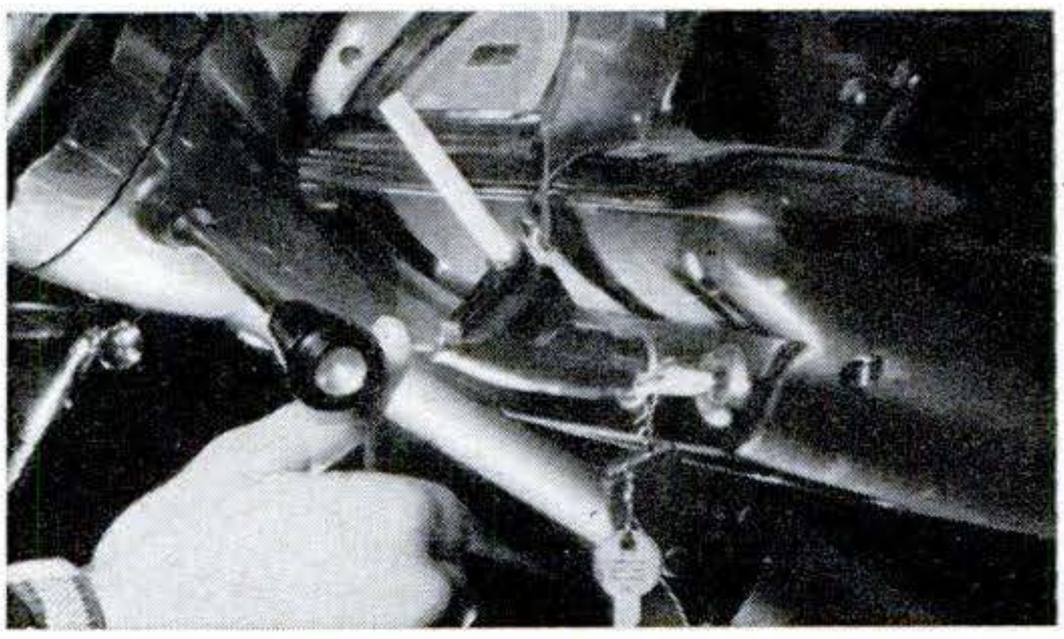
You can prevent cracking, crazing, alligatoring and chipping of enamel put on over an old surface. First clean off all dirt, grease and wax with a strong solution of washing soda, and rinse with clear water. Then sand to cut through the gloss of old enamel, varnish or paint. If an oil gloss paint was used for the old surface, mix a little enamel with the first coat of enamel undercoater.

Copyrighted material

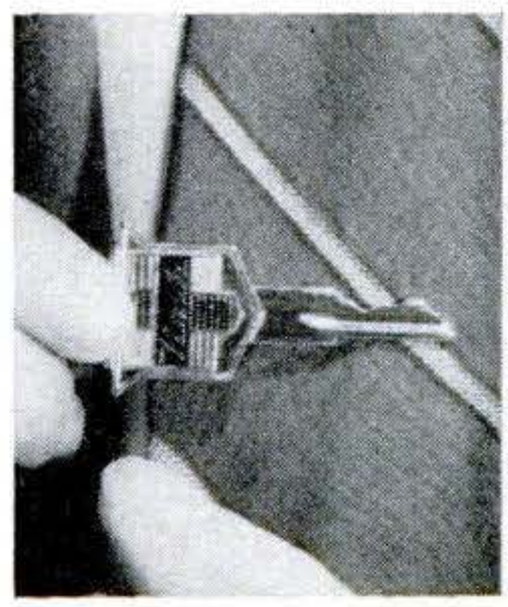


1. Car Tent Pulls Out. Setting up this 7½-by-10½-foot tent is a matter of a few minutes. You pull it out from the aluminum carrier mounted on the car roof with straps or suction cups. There's room in the case for cots and other equipment.

New for Your Car

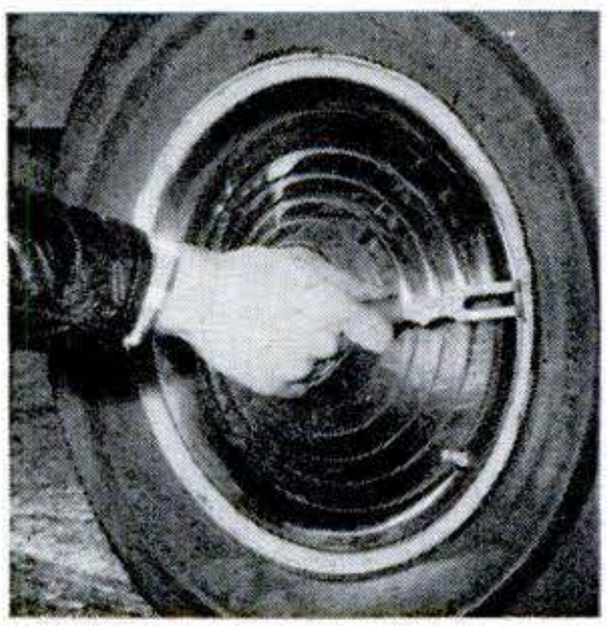


2. Lighter Puffs on Cigarette. Press the button on this automatic lighter, and you get a light without taking your eyes off the road. It plugs into the regular dashboard lighter socket, and will work on all six-volt cars. No wiring is required.

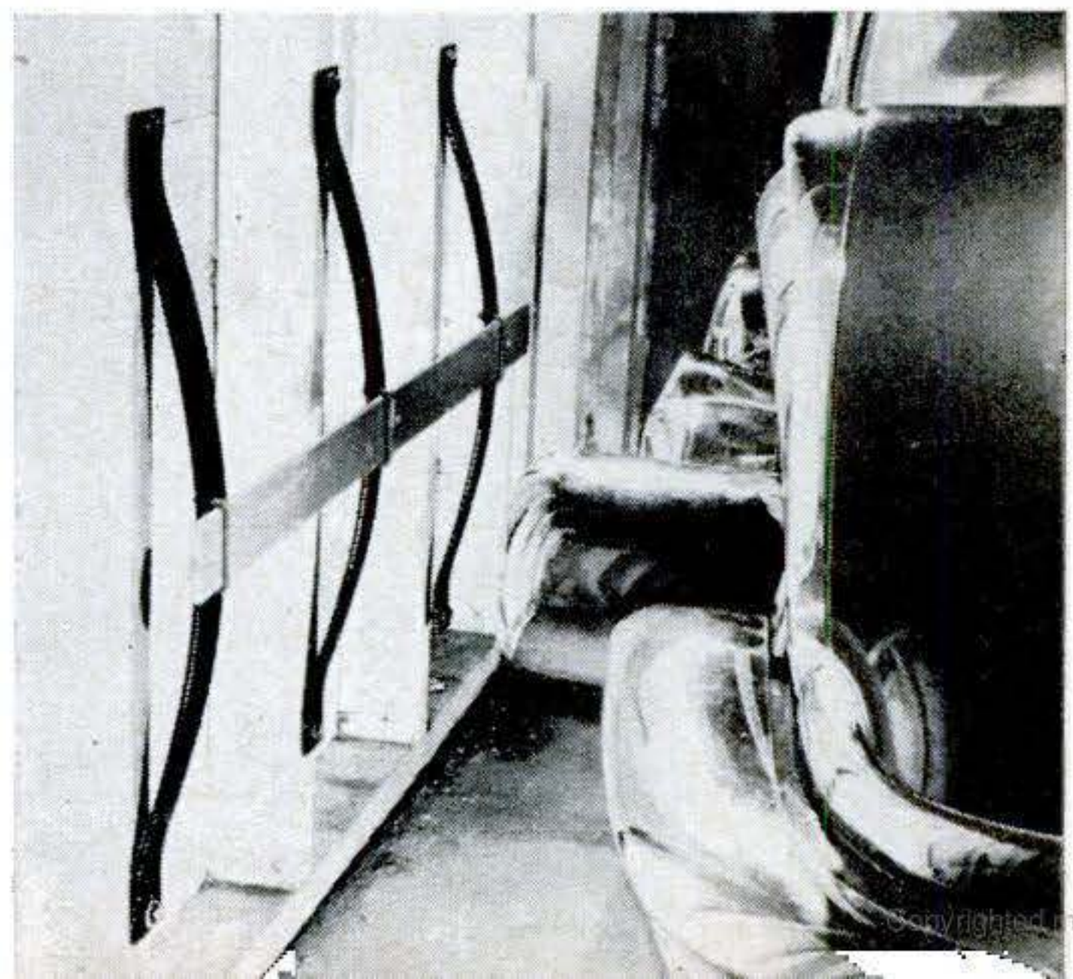


4. Key Worn on Tie. An emergency car key in the form of a tie clasp will keep you from locking yourself out. Decorated with your car's crest, the key swivels off the tie bar for use when it is needed.

3. Hubcap Tool Prevents Marring. Prongs on this tool remove a hubcap or wheel disk without denting, and you can use the rubber handle as a hammer in replacing them. The tool is also useful for removing front-wheel grease caps, transmission snap rings, door-hinge pins, chrome molding and for household jobs.



5. Garage Buffer Absorbs Bumps. Both garage and car are protected from damage by this spring-steel buffer bolted to the wall with its adjustable crossbar at bumper height. The bar is painted in aluminum to give maximum light reflection.



Further information on these new car products can be obtained from: 1. Kar Kamp Mfg. Co., 11680 McBean St., El Monte, Calif.; 2. Skibby's, 3463 S. 12 St., Milwaukee 15; 3. Presto Mfg. Co., Ltd., 302 Fort St., Winnipeg 1, Can.; 4. Maymac Co., 79 W. Grand St., Mount Vernon, N. Y.; 5. Tuthill Spring Co., 760 W. Polk St., Chicago 7.

Copyrighted material

Pointers on Building Garage Doors

By Edwin M. Love

YOU can use three basic frames to build just about any kind of overhead garage door you'd like. Faced with inexpensive siding or plywood, they can be styled to match your house or to give it a special touch.

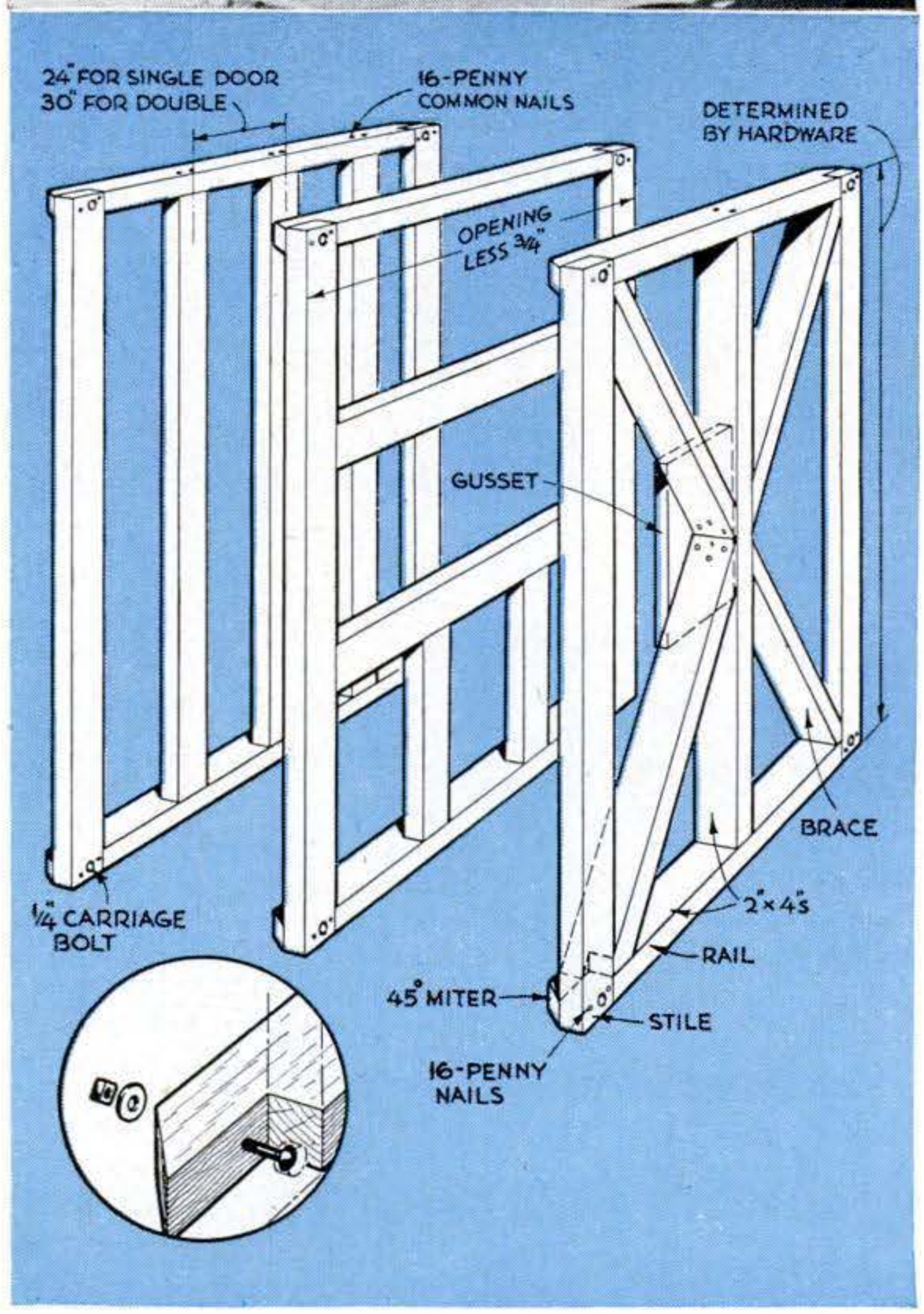
Two-by-four rails, set flatwise at the sides, are notched into stiles at the top and bottom and bolted together at the corners for strength. You can then nail in braces crosswise for vertical boards or run them up and down for horizontal or diagonal ones.

With the split frame, you can run the siding in two directions for a wainscoting effect, or combine siding with plywood. The X-braced frame provides corner supports for nailing on boards in concentric squares or rectangles. Or you can add a window or louver to help break up that bare-face look that many doors have.

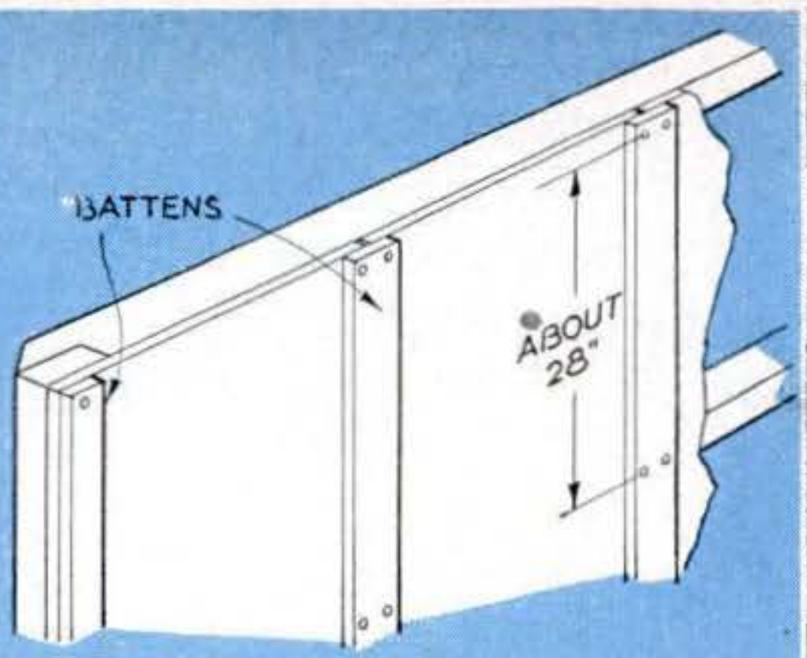
Selecting the hardware. Most jamb-type sets require a space of 8" to 13½" from the top of the door to the ceiling. If you haven't this much room, you can get special track sets that need as little as 1½".

There's also a pivot type that mounts on the side of the garage, but this can't be used where a narrow opening requires it to be set too far out from the wall.

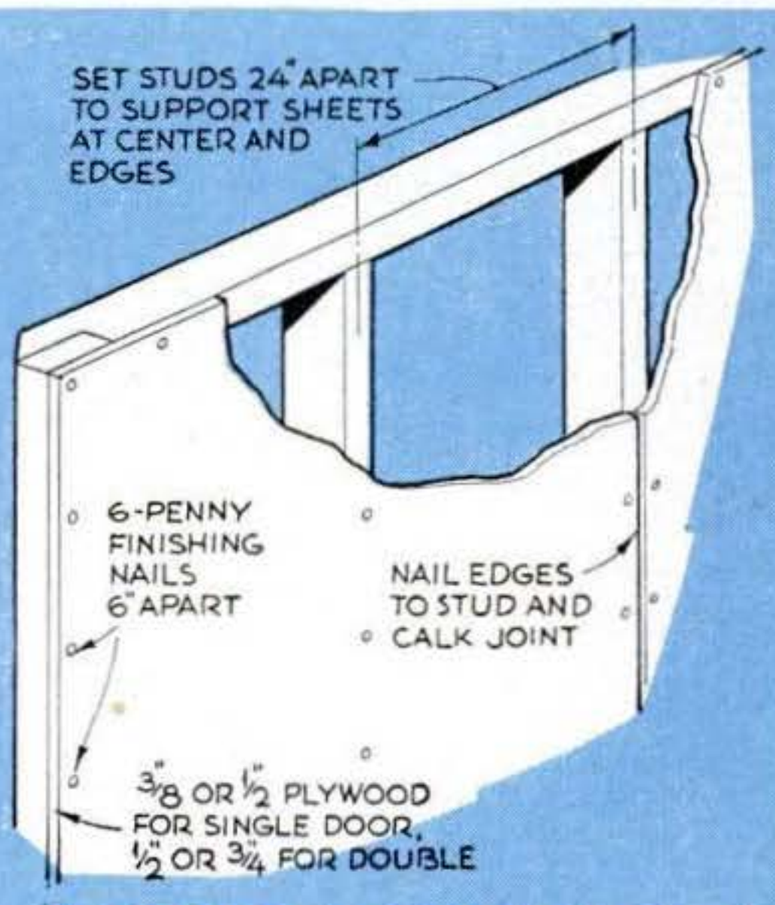
You'll need heavier hardware for a double door than for a single. Most sets come in only two sizes, but for



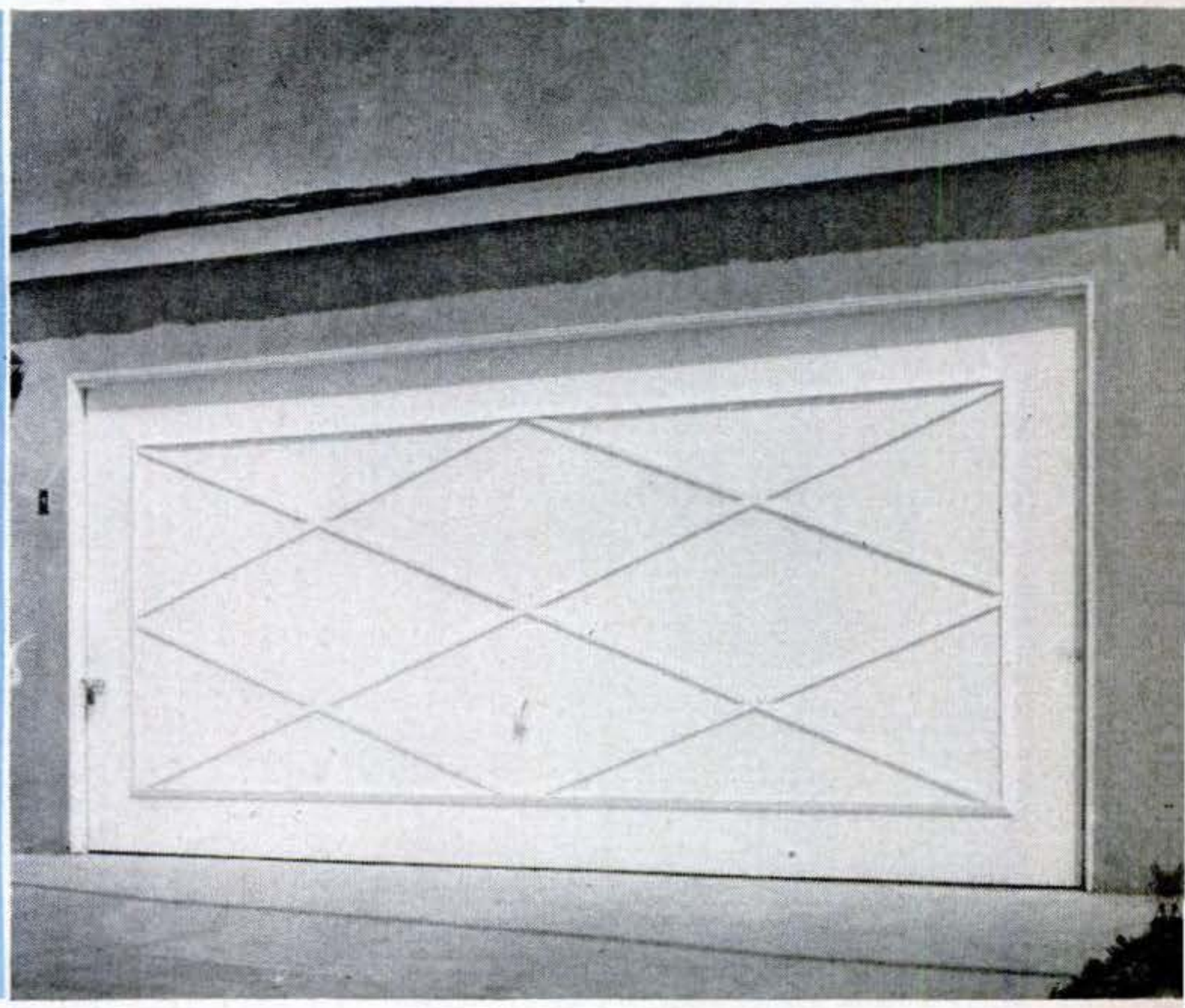
Copyrighted material

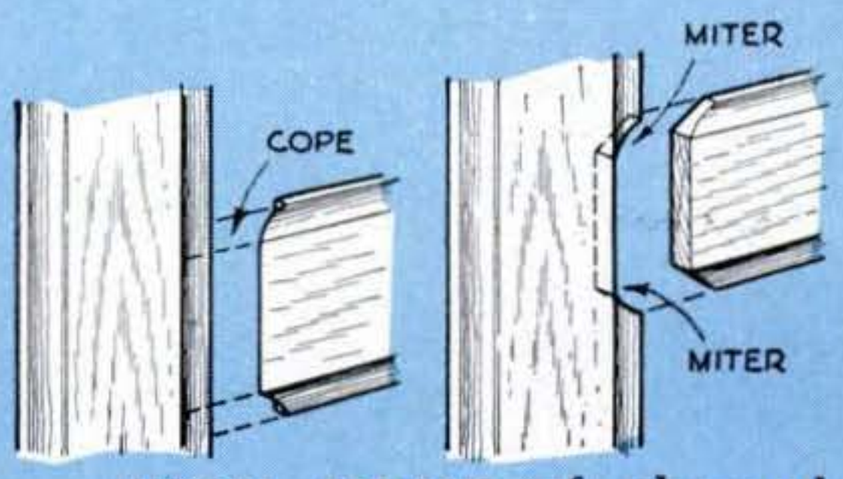


BOARD-AND-BATTEN treatment gives look of vertical paneling, but with less-expensive unmilled lumber. Gap boards ¼" for swelling; cover joints with one-by-two or one-by-three strips.



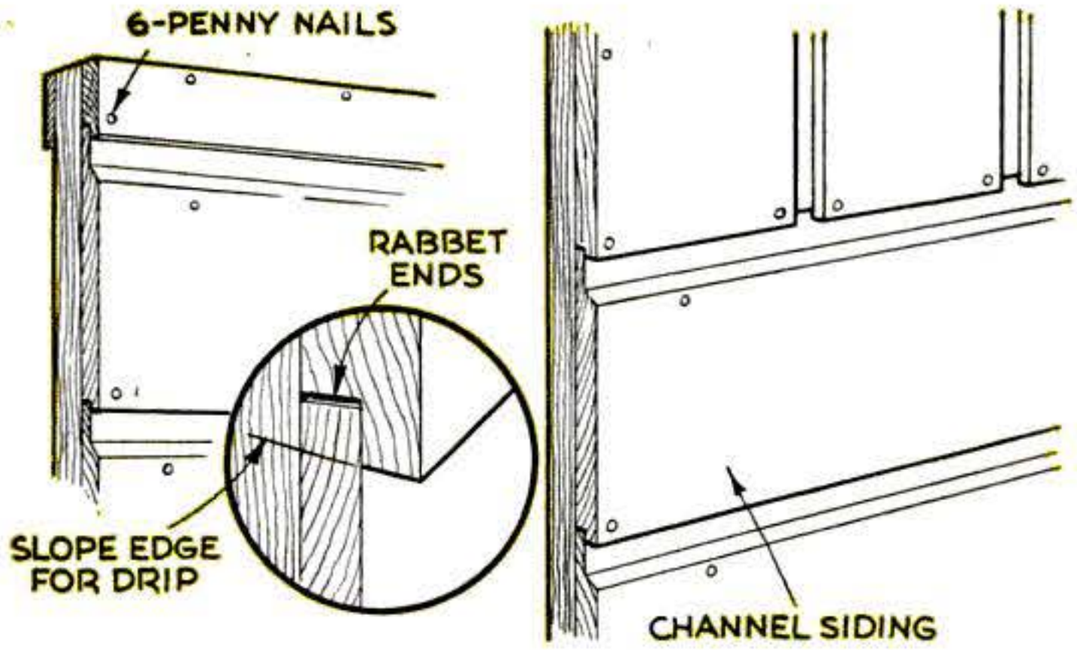
DIAMOND PATTERN of wood molding dresses up a plain door made by nailing plywood sheets over frame. Use cheap sheathing-grade plywood, but patch and fill it well before painting.



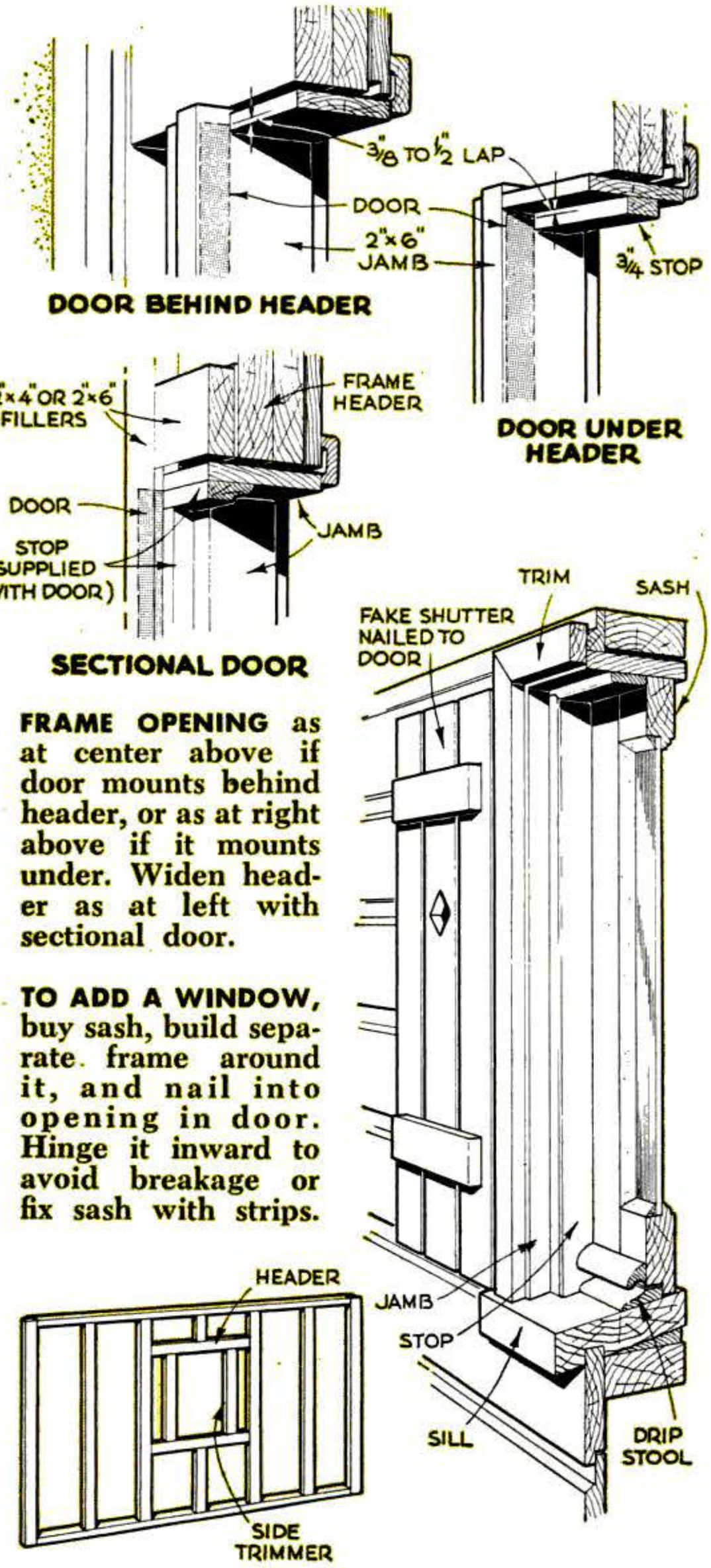


SMALL SCRAPS of plywood nailed to door frame and covered with checkerboard pattern of strips save waste. Sketch shows two ways you can notch fancy moldings to fit together.

Copyrighted material



NAIL SIDING TO FRAME for a door that blends with house walls. Countersink and putty over heads to prevent rusting. For wainscot effect at right, rabbet vertical boards over lip of horizontal one below and back up joint with cross brace.



FRAME OPENING as at center above if door mounts behind header, or as at right above if it mounts under. Widen header as at left with sectional door.

TO ADD A WINDOW, buy sash, build separate frame around it, and nail into opening in door. Hinge it inward to avoid breakage or fix sash with strips.

others that are rated according to door weight, you can figure that a single door will run about 200 pounds and a double one twice that.

Framing the opening. All jamb-type and some track-type mechanisms require new 2″-by-6″ side jambs to provide a mounting base. You can spike these over the old 1″ jambs if space permits, or remove the old ones first. Shim them plumb and cover the gap with new, wider trim.

While the header beam, if level, is sometimes used for the top jamb, it's usually best to nail up a new 1″ board. For an inside-lap door, this must be narrower than the side jambs by the thickness of the door, so that the back is flush with the jamb edge.

Laying out your door. The 8′ width for a single door is often stretched to 9′ to give today's super-cars more fender room, but 16′ is still popular for a double. If need be, the standard height of 7′ can be cut 6″ without decapitating your car.

If you're working with an existing garage, take the dimensions directly from the opening after all new framing is in. Allow ⅜″ clearance at each side of the door and whatever is required at the top by the hardware. Build the door on the floor so you can be sure that all parts lie flat.

Putting on the face. If you use siding, nail it on so that the joints line up with the siding on the garage. If you run it vertically, start at the center and work toward each side so that the edge pieces will come out equal in width.

For a plywood facing, run both the frame members and the sheets vertically, making sure that there's a brace at each joint and one at the center of every 4′-wide panel.

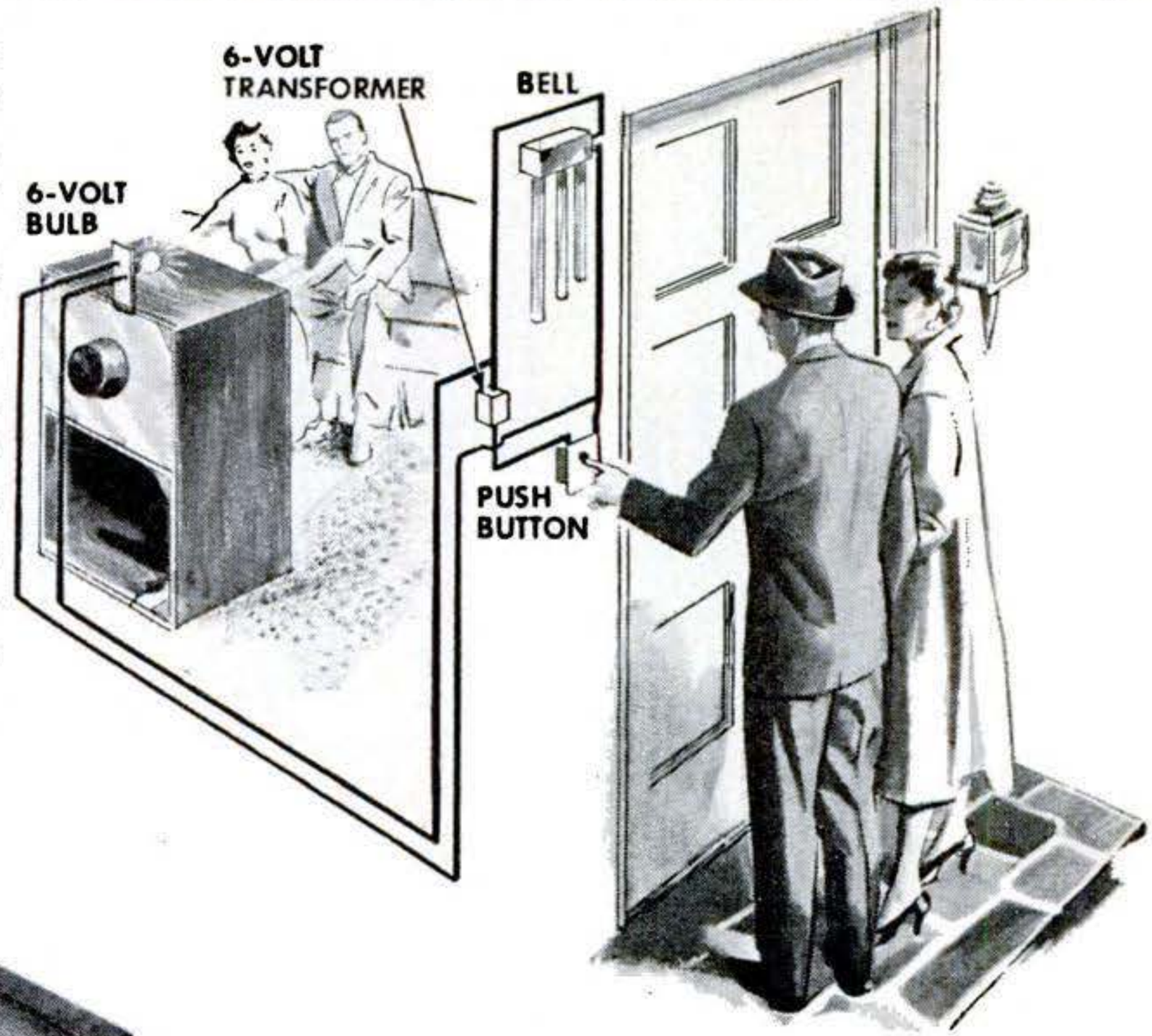
Butt joints will crack and show unless you plan to cover them with moldings or battens. If you want a plain surface, miter the plywood edges at the splices, coat them with waterproof glue, and nail through the laps into the backing frame. END

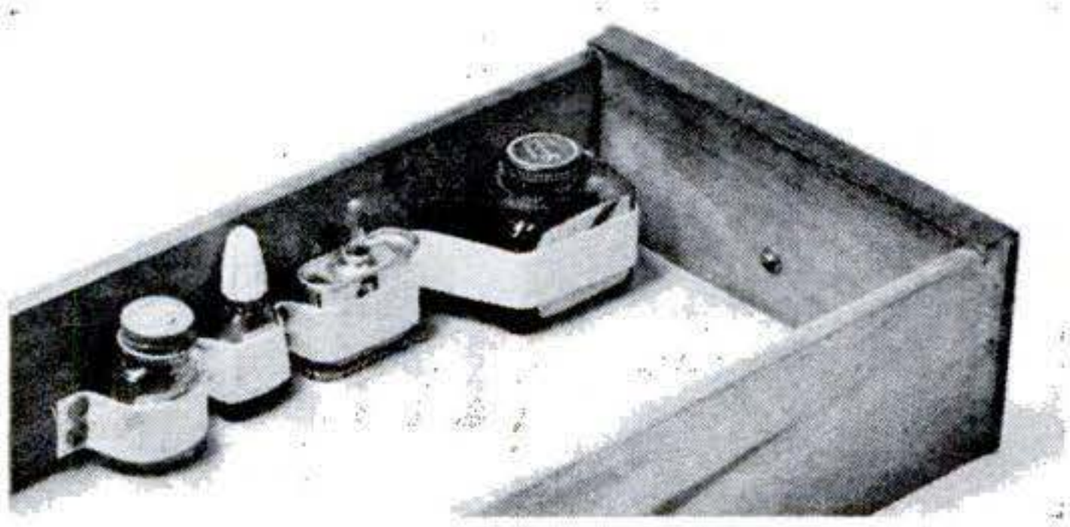
Copyrighted material

Signal Light on Television Set Announces Arrival of Guests

HARD to hear the doorbell when you're deep in your favorite video show? Then a bit of bell wire, a small plastic socket and a 6- or 8-volt bulb can solve your problem.

Attach a bracket to the back of the TV set and mount the socket on it just above the cabinet. Attach two lengths of bell wire to the socket and run them around the baseboards to connect with the doorbell circuit. When the doorbell rings, the bulb will light up.—*George P. Stein, Glendale, N. Y.*



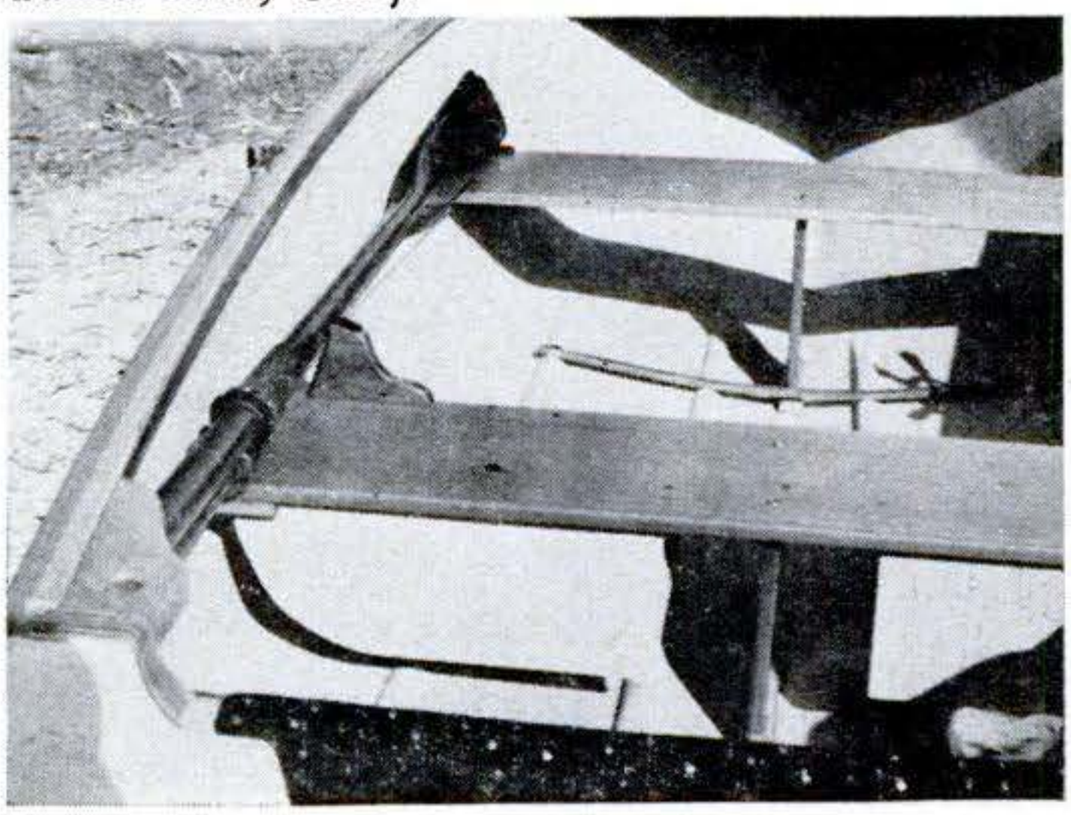


Tape Holds Bottles Upright

SMALL bottles won't tip over in a desk or vanity drawer if you secure them with a length of elastic tape. Press in thumbtacks at intervals to accommodate single bottles. —*Norm Jacky, Fond du Lac, Wis.*

Brackets Keep Oars Off Floor

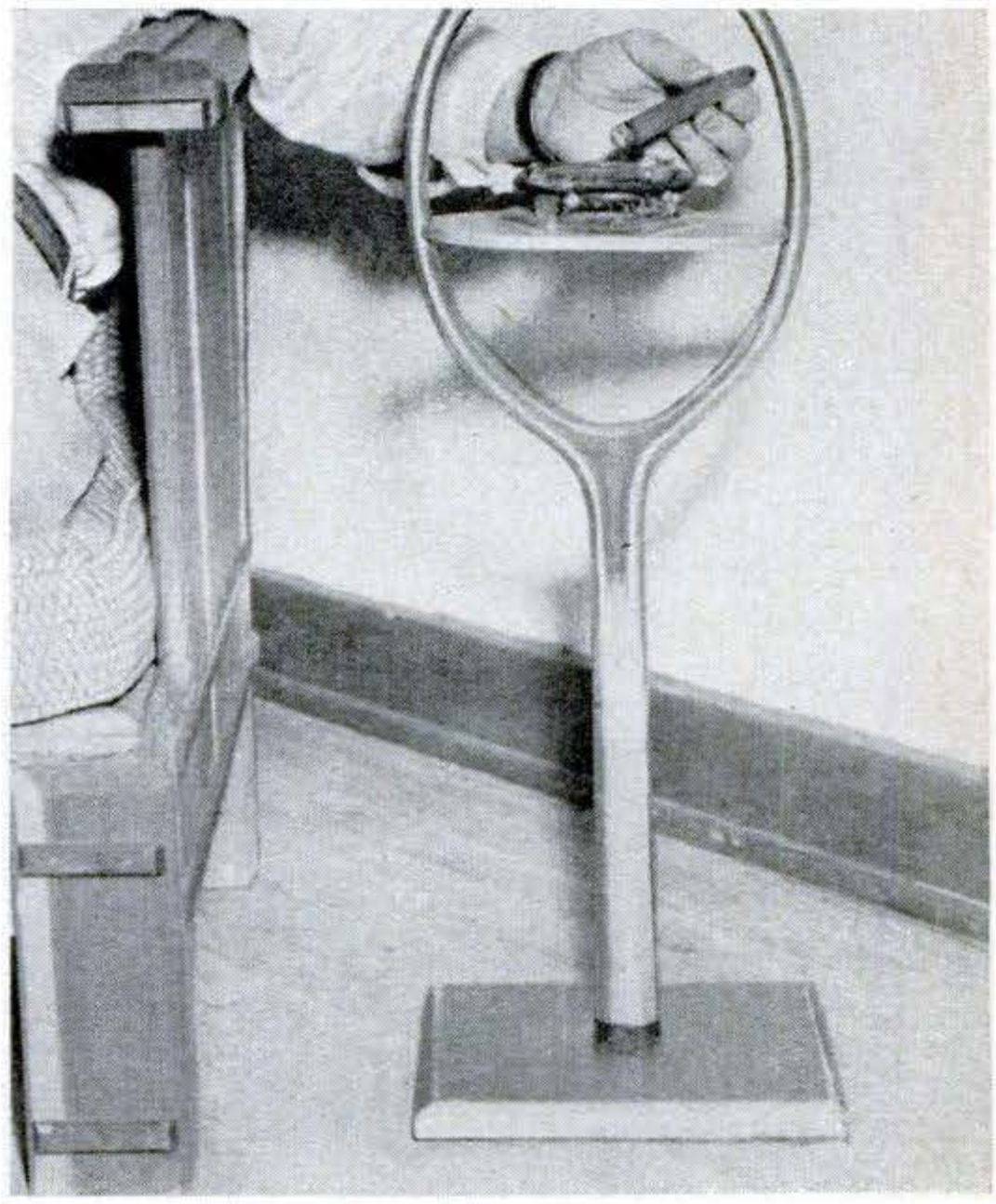
OARS are out of the way but accessible if you mount an oar bracket on each side of the rear seat. I shaped mine from 1"-by-6"-by-6" hardwood. Face them with a strip of tire casing or rubber shoe sole. Similar strips on a forward seat and inside the transom will prevent chafing.—*Clinton R. Hull, Santa Ana, Calif.*



Tennis Racket Is Table Stand

YOU can use an old tennis racket as a stand for an unusual end table in a den or playroom. Remove the strings and sand off the varnish; then notch a disk of ¼" stock to fit the frame snugly. There's no danger of tipping if you glue the joints and drive in a slender finishing nail.

An 8"-by-9" piece of ¾" veneer plywood makes a sturdy base. Bore to the shorter diameter of the octagonal handle, and rasp to fit. Glue in with or without the shoe. —*Clifton Morris, Albuquerque, N. M.*



Copyrighted material

An Easy Chair for Outdoor Living

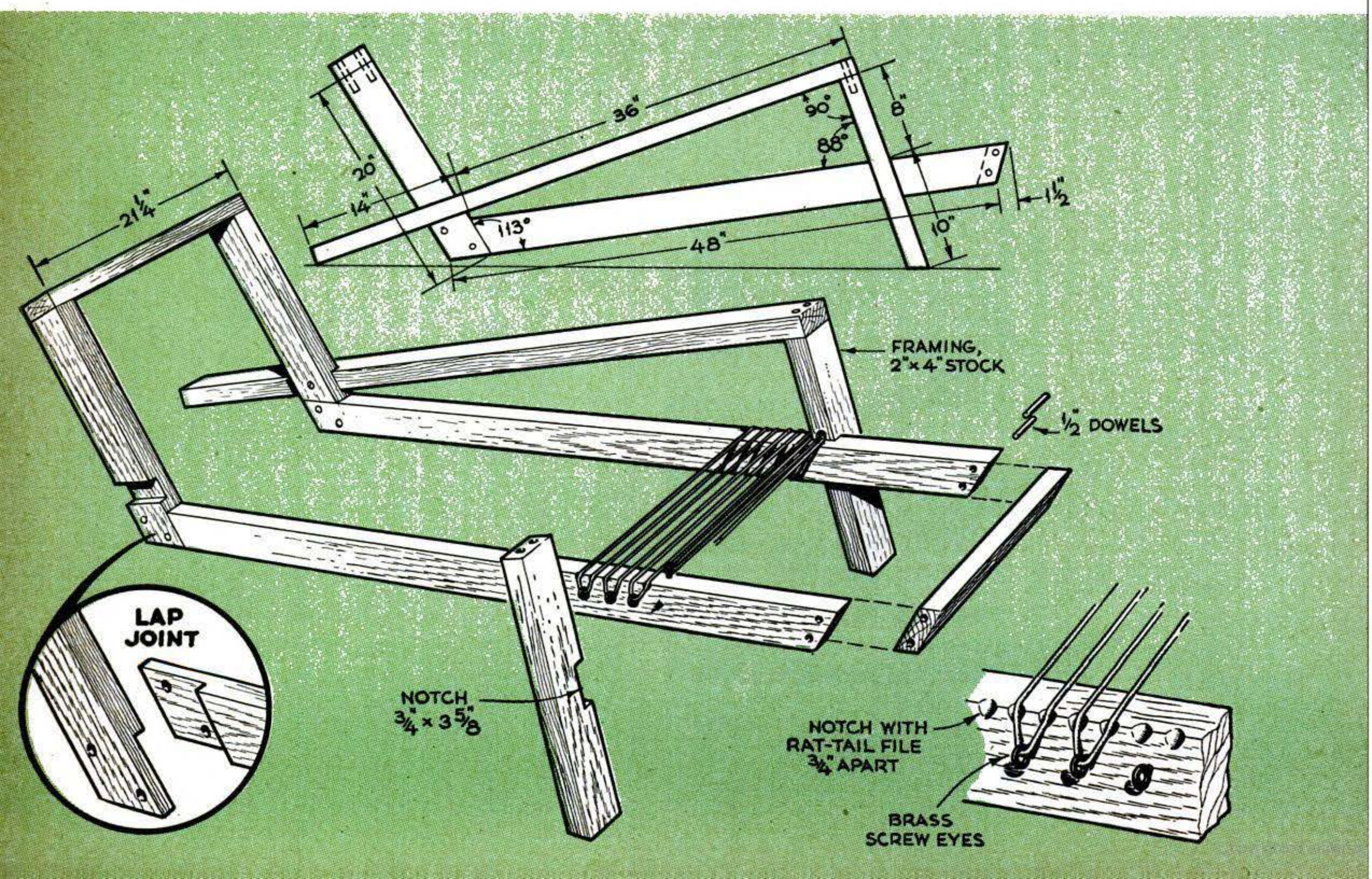
Easy to loaf in and easy to make, you can put it together over a weekend.

THIS surprisingly comfortable outdoor chaise longue is a simple construction of two-by-fours and clothesline. A fast worker might relax in it the same day he actually began the job.

Use selected, vertical-grain pine or fir for the frame. Assemble the back rest and seat frame first, and then the arms and legs.

Note that the front legs and back uprights are notched for mating pieces. Except for these joints, which are fastened with glue and wood screws, all are doweled and glued, with the dowel holes bored from the faces. This makes it easy for you to match holes and produces a pleasing effect of pegged joints. Use waterproof glue. Finish is applied before lacing.

Use high-grade cotton line that has been stretched on pulleys overnight with a bucket of sand for a weight. Knot the end and lace taut through screw eyes. You need about 130′ for the seat and at least 52′ for the back. Lashed shorter lengths may be used if the joined ends are stapled against solid wood to relieve strain.—*Hi Sibley, Nuevo, Calif.*



He's Building a Steam Car

Ray Boss works both ends of the scale: from full-size gas and steam cars down to tiny, incredibly detailed models.

By Harry Walton

OFTEN it's because a thing doesn't look possible that Ray Boss of New London, Conn., tries it. When it's done, he goes on to something equally unlikely, such as a live-steam locomotive in TT gauge.

A serious young chap (he's only 27), Boss has been at it since his early teens. He's a man with two interests, steam cars and miniature models, and, not illogically, he has two workshops. One, in the basement, is for "little

Copyrighted material

stuff." It has a 10″ quick-change lathe, bench milling machine, drill press, jigsaw, grinder and the usual small tools.

His back-yard shop, housed in a 24-by-40-foot building, consists of sterner stuff. Boss built the place of concrete blocks (he did the wiring, too). Big enough to hold several cars, it is outfitted with two lathes (the larger a gap-bed type that swings a 16″ faceplate), a factory-size milling machine, drill press, welding equipment, arbor press and heating plant. Here Boss works on cars or other big jobs.

Employed as a skilled assembler at the Electric Boat Company plant, Boss prefers the late-afternoon-to-midnight shift because it gives him more time for his hobbies. He manages about four hours a day in his own shops. With two or three projects always under way, the time goes quickly.

This is one of a series of articles about outstanding home workshops. See POPULAR SCIENCE MONTHLY *next issue for a story on another fellow's shop.*

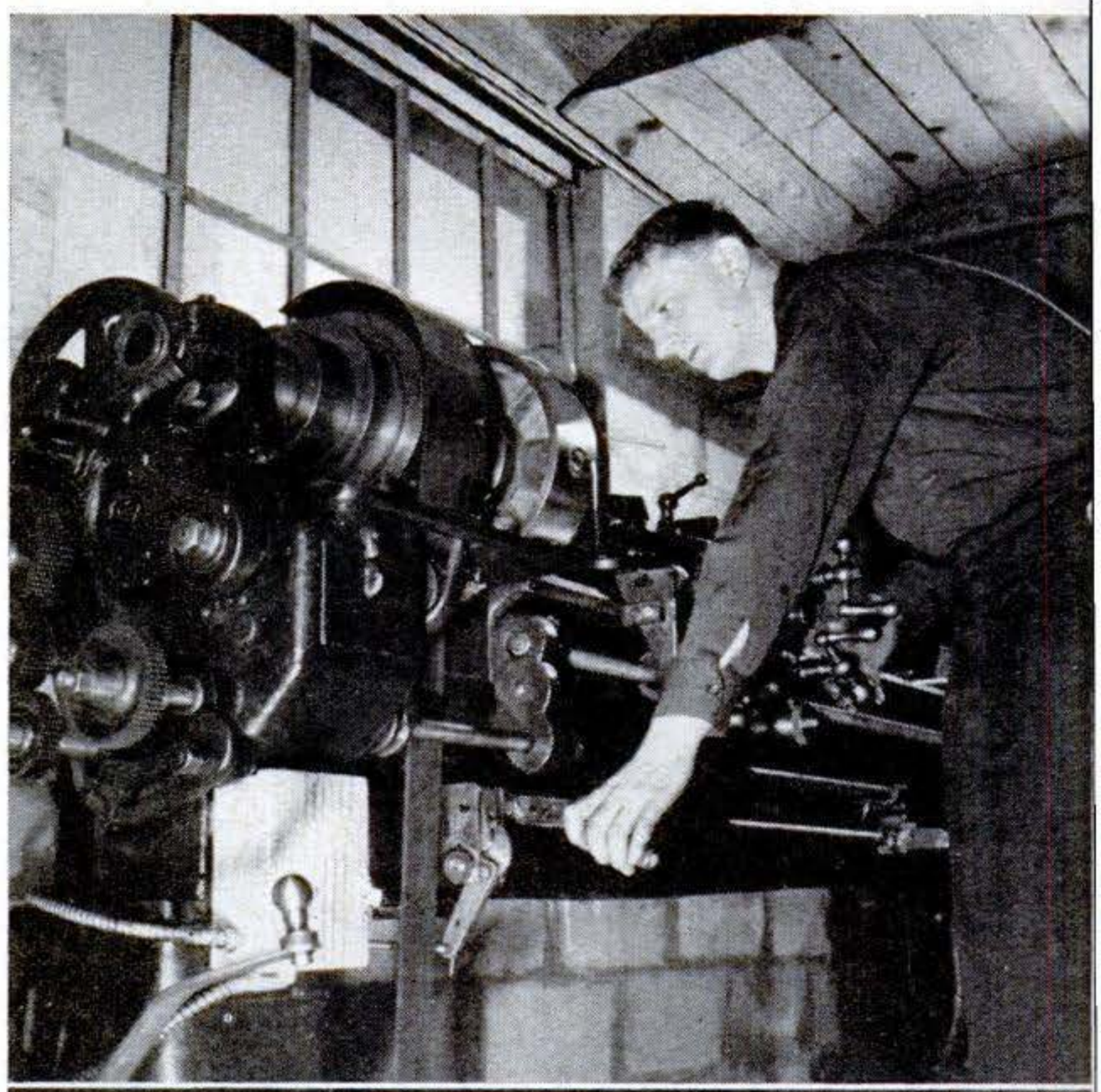
When Leo Reagan, a prominent local citizen, bought a 1900 Locomobile steamer, he found ordinary garage mechanics unable to cope with its intricate plumbing. After some costly blunders, the job came to Boss.

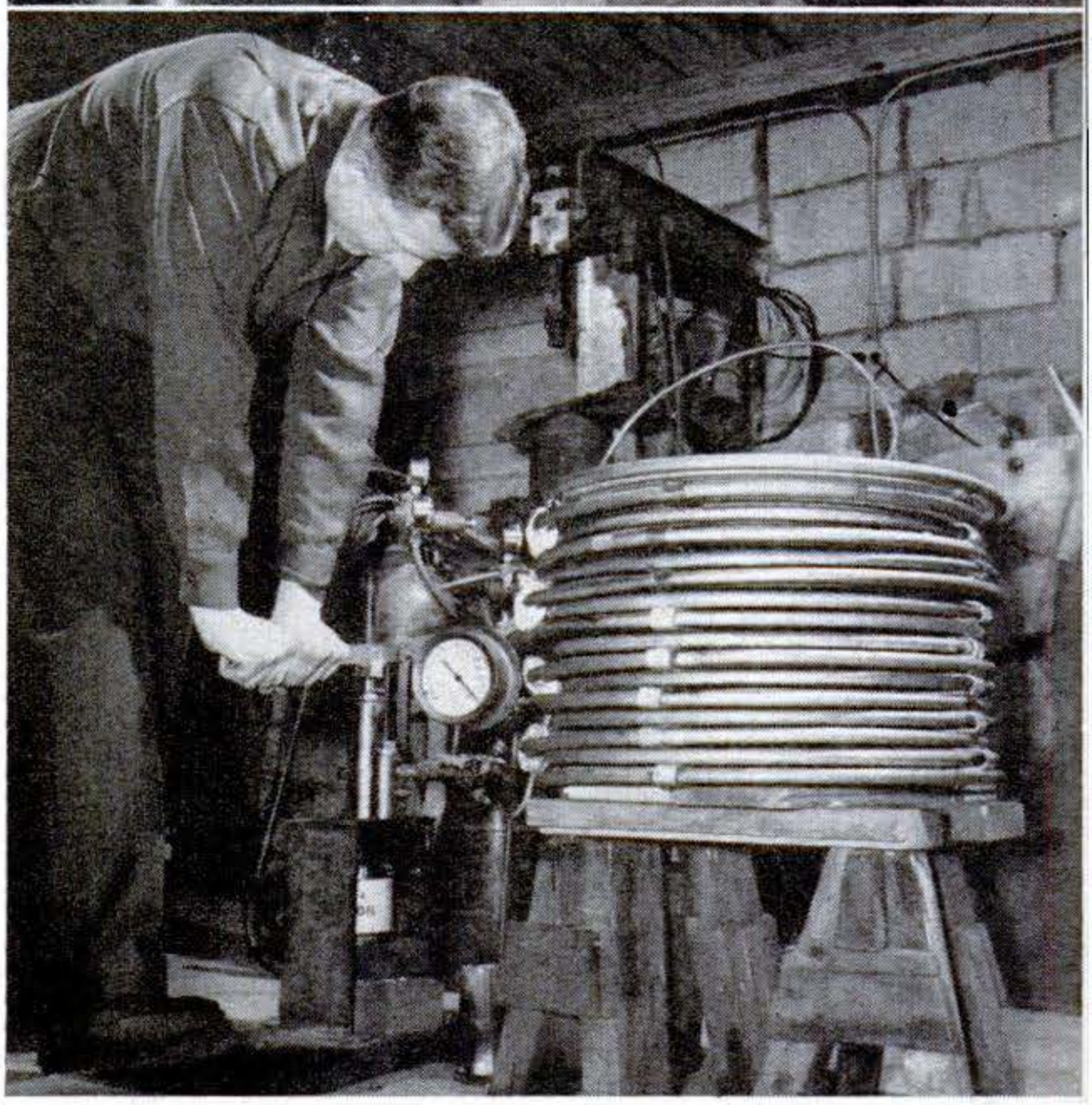
He took the car apart, repaired defective parts or made new ones, and rebuilt it. He then refinished it expertly, even to pin stripes on the spring leaves.

But what Boss would really like to make is a modern steam car. He feels that such a machine, built with today's superior materials and taking advantage of decades of automobile know-how, should be superior to gasoline cars on several counts. Since Detroit isn't turning out any, Boss is building his own.

He plans to get a running start by using the frame, wheels and body of a Henry J he has. But he will remove the engine and transmission to install a homemade steam power plant and a monotube steam generator. This he has

GAP-BED LATHE, one of three that Boss uses, has ways that can be slid away from the headstock when extra-large work is to be swung. It was on this that he wound the coils (at bottom of page) for the steam generator he plans to use in a car. A Chrysler auto transmission varies spindle speeds. Boss's hand is on a belt-tightening lever that serves as a clutch to control the lathe.



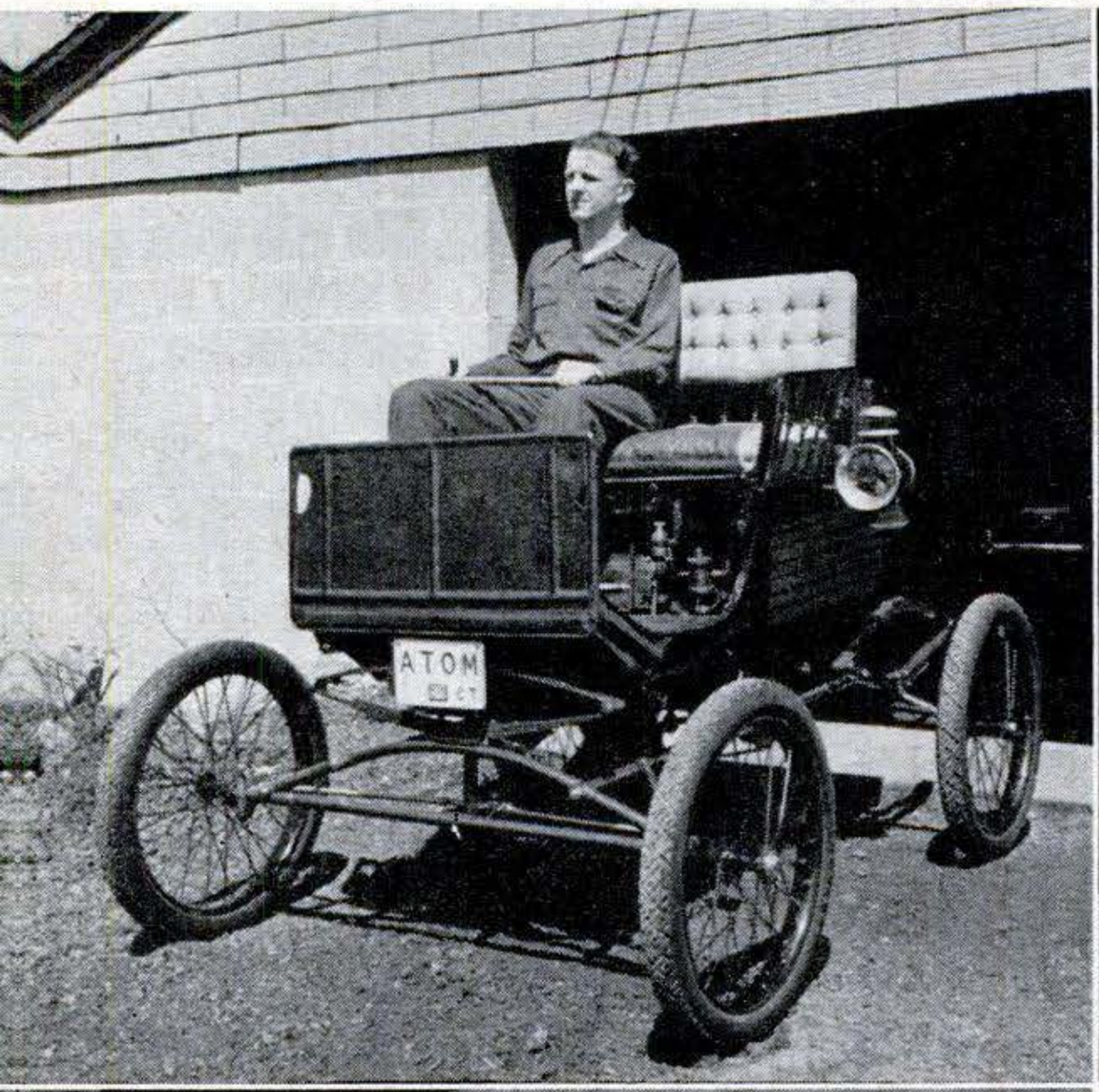


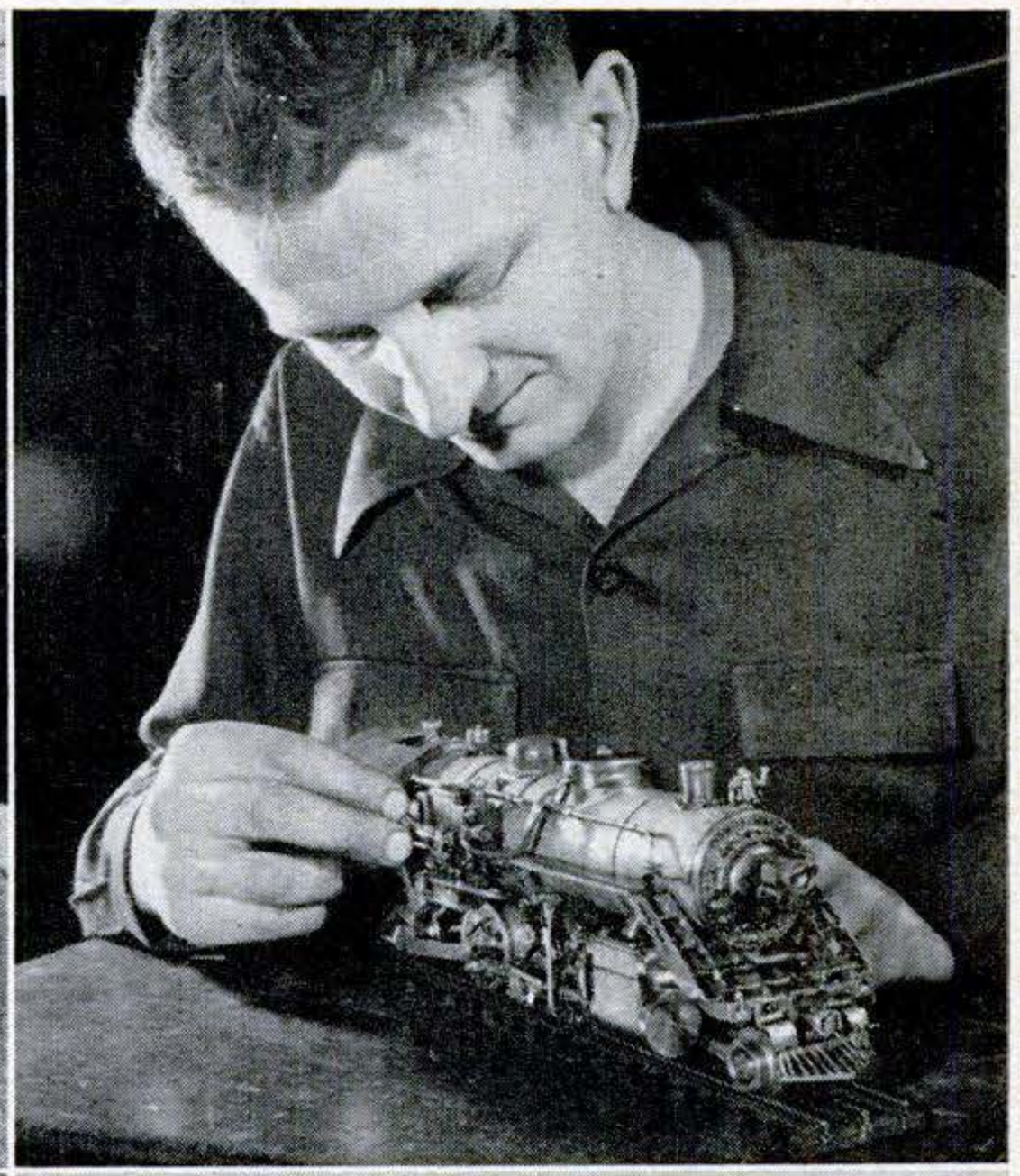
COILED POWER. Monotube steam generator is designed to convert a Henry J to steam. It consists of eight sections of ⅝″ steel tubing, each having two coils wound in opposite directions. With a homemade pump, Boss here applies 2,000 lb. of hydraulic pressure to test the assembly. It has 70 sq. ft. of heating surface, and will be heated by a gun-type burner.

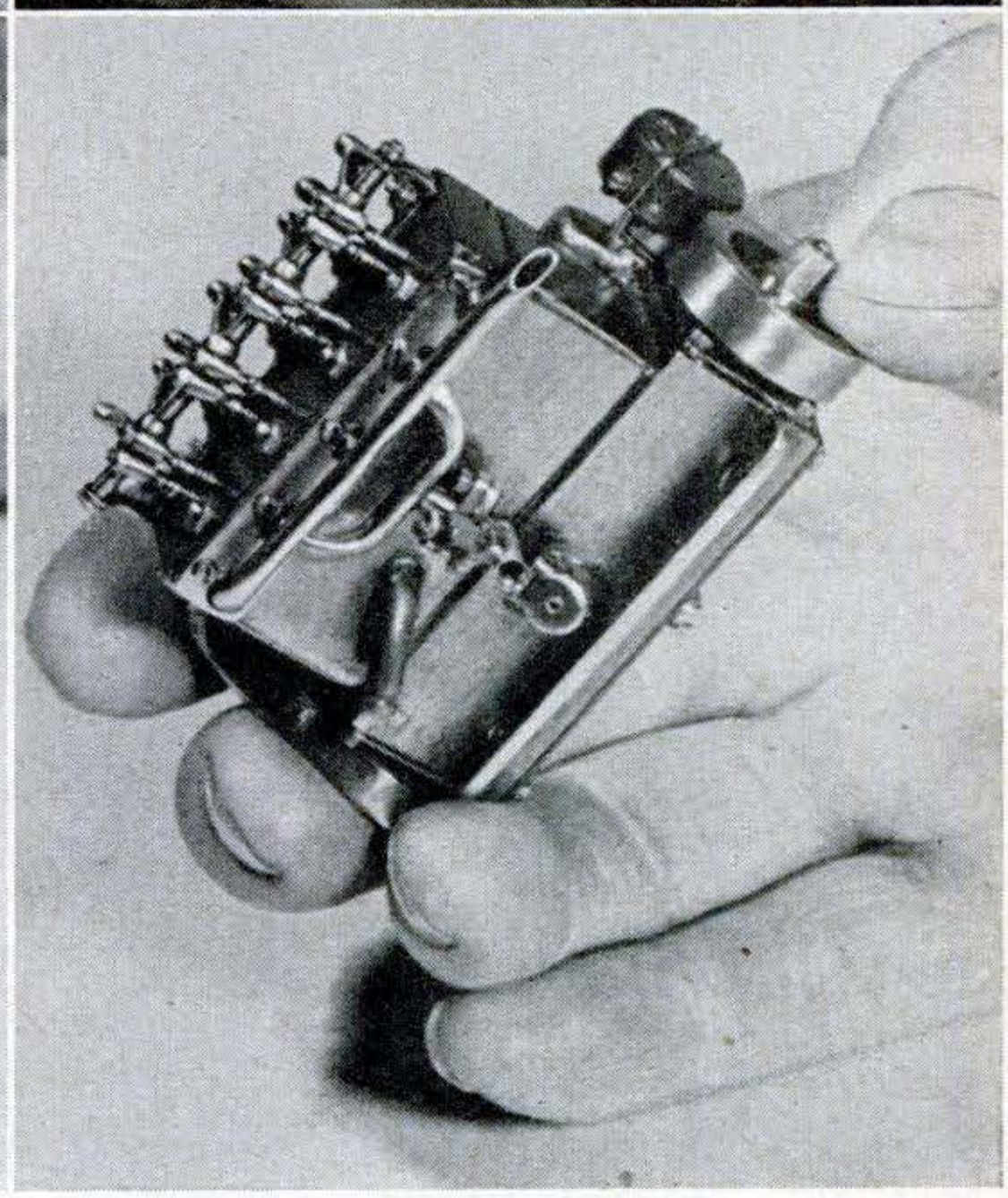
Copyrighted material

1900 LOCOMOBILE STEAMER was rebuilt and refinished like new by Boss. Its noncondensing power plant is good for about 25 miles on a filling of water. The boiler and two-cylinder engine are under the seat. Controls include a steering bar, throttle, foot brake and valve cutoff. Now that the steam buggy is finished, Boss is making a working model of it.

LIVE-STEAM LOCOMOTIVE has run many scale miles on Boss's O-gauge cellar pike. It was originally fired by an alcohol torch, but is being converted to burn butane gas. The cylinders are ½" bore and have slide valves worked by Walschaert gear. The duplex steam pump (near finger) puts water into the boiler while engine is under steam, so it can make long runs.



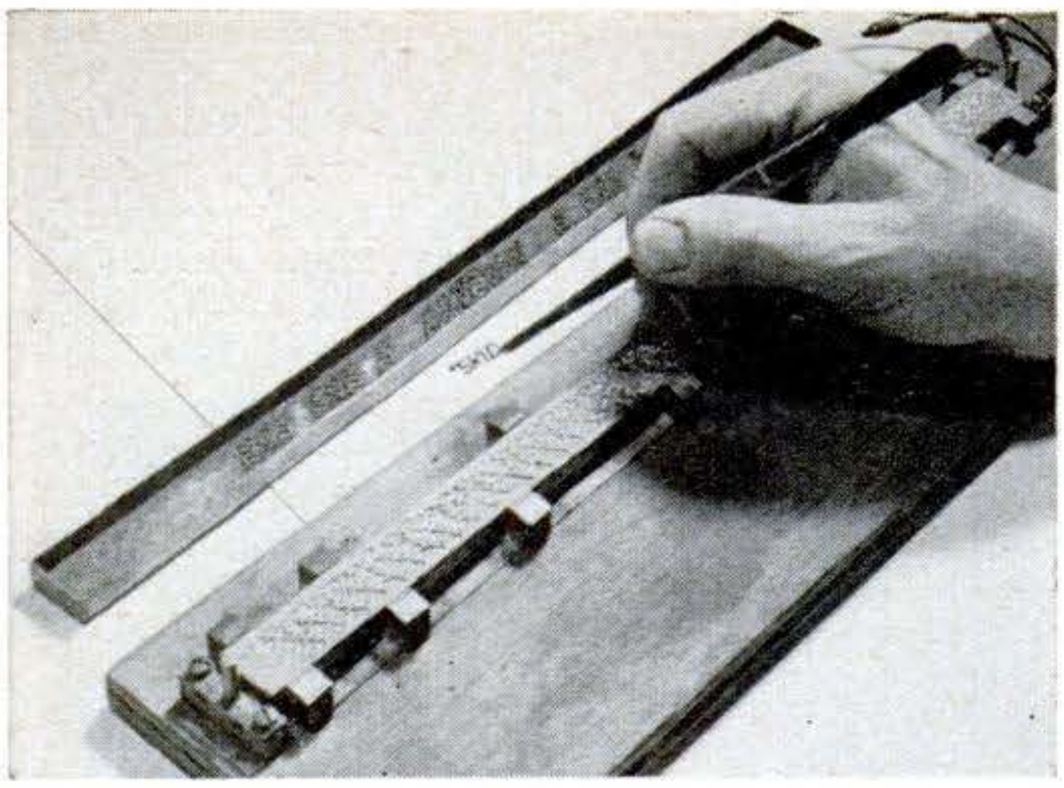




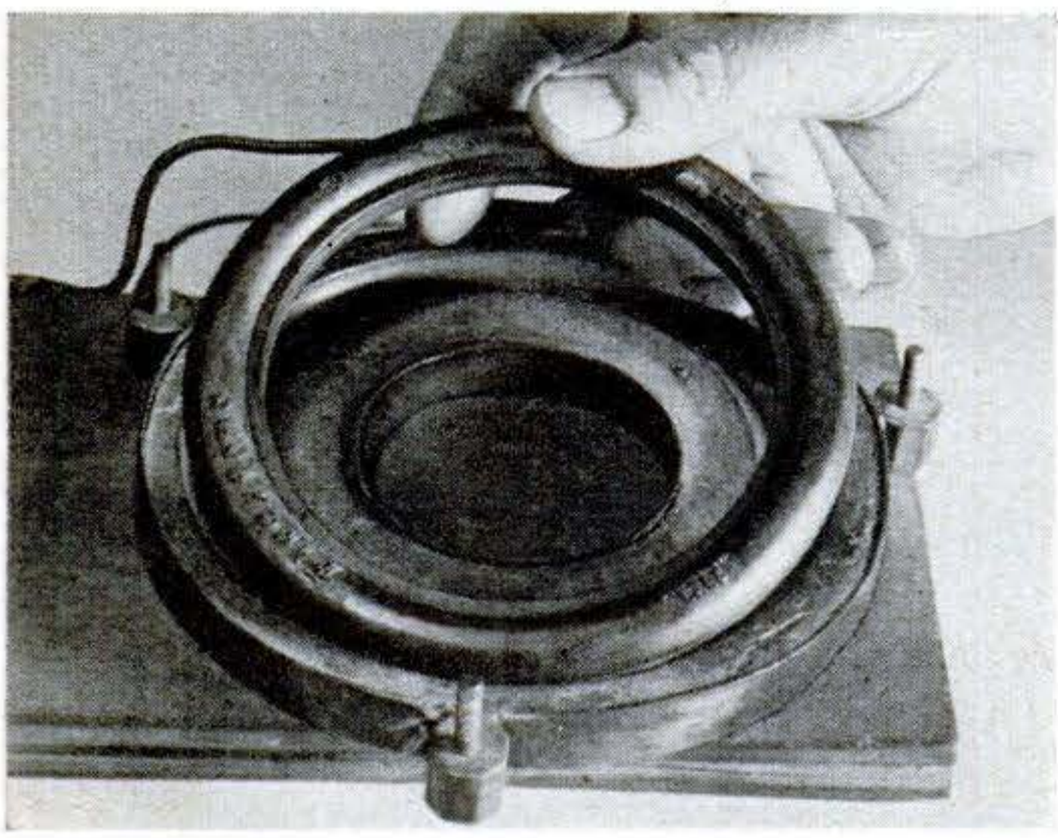
MODEL RACING CAR above has a fully sprung front end. An Arden .099-cu.-in. engine is built into the driver's body; brass head unscrews for access to the spark plug. A larger racing car made by Boss has full springing, welded wire wheels and a real carburetor. He runs them in the basement, where they are tethered to a pole by a ball-bearing swivel.

MIDGET GAS ENGINE, a four-cylinder water-cooled type, is ¼" bore and stroke. Pistons are cast iron, with 1/32" hollow wrist pins and bushed rods. The camshaft was filed to shape and case-hardened. Tappets are adjustable. The shaft runs in ball bearings. Spark plugs don't come small enough; Boss made each by turning down 136 mica disks on a metal stem.

Copyrighted material



LAST-DITCH REALISM. To duplicate antique tire tread for a scale model, Boss cut words NON and SKID—24 of each—from thin brass, then pinned them into a metal tray (in rear above), laid in copper tubing, and poured in type metal. Result is a vulcanizing mold (under hand).



TIRE CARCASS, complete to trademark and tire size in relief, was tooled out of metal and used as the pattern for another type-metal mold. Uncured rubber was clamped into both molds and vulcanized by passing steam through the embedded tubing, forming tread and carcass.

TREAD WAS CEMENTED to carcass to produce the model tire, here shown against the real thing for comparison. Spokes for the car's wire wheels are .030" florist's pins, threaded 112 threads per inch with a homemade die to screw into tapped holes in the metal rims.

already made of stainless-steel tubing. To fire it, Boss plans to use a standard furnace oil burner converted to 12-volt operation. The burner will work into a combustion chamber at the top of the boiler coils, with the "chimney" underneath. He believes it will burn fuel oil, gasoline or kerosene interchangeably.

Two thermostats are to control the burner, one to cut out when coil temperature reaches a certain maximum limit, the other when steam pressure gets up to several hundred pounds. The boiler will be fed with water automatically by an electric pump, requiring no attention.

Boss expects to take a year to build the engine, a pancake four-cylinder type with single-acting cylinders and poppet valves. He will probably use motorcycle barrels and parts of auto engines.

Instead of exhausting steam to the atmosphere (which would require a big water supply and frequent stops for replenishment), the engine will exhaust into a condenser. This will probably be an auto radiator mounted in the usual position in front. As the exhaust steam returns to water, it will produce a vacuum that will boost engine power, and the water will be recirculated to the boiler for further use.

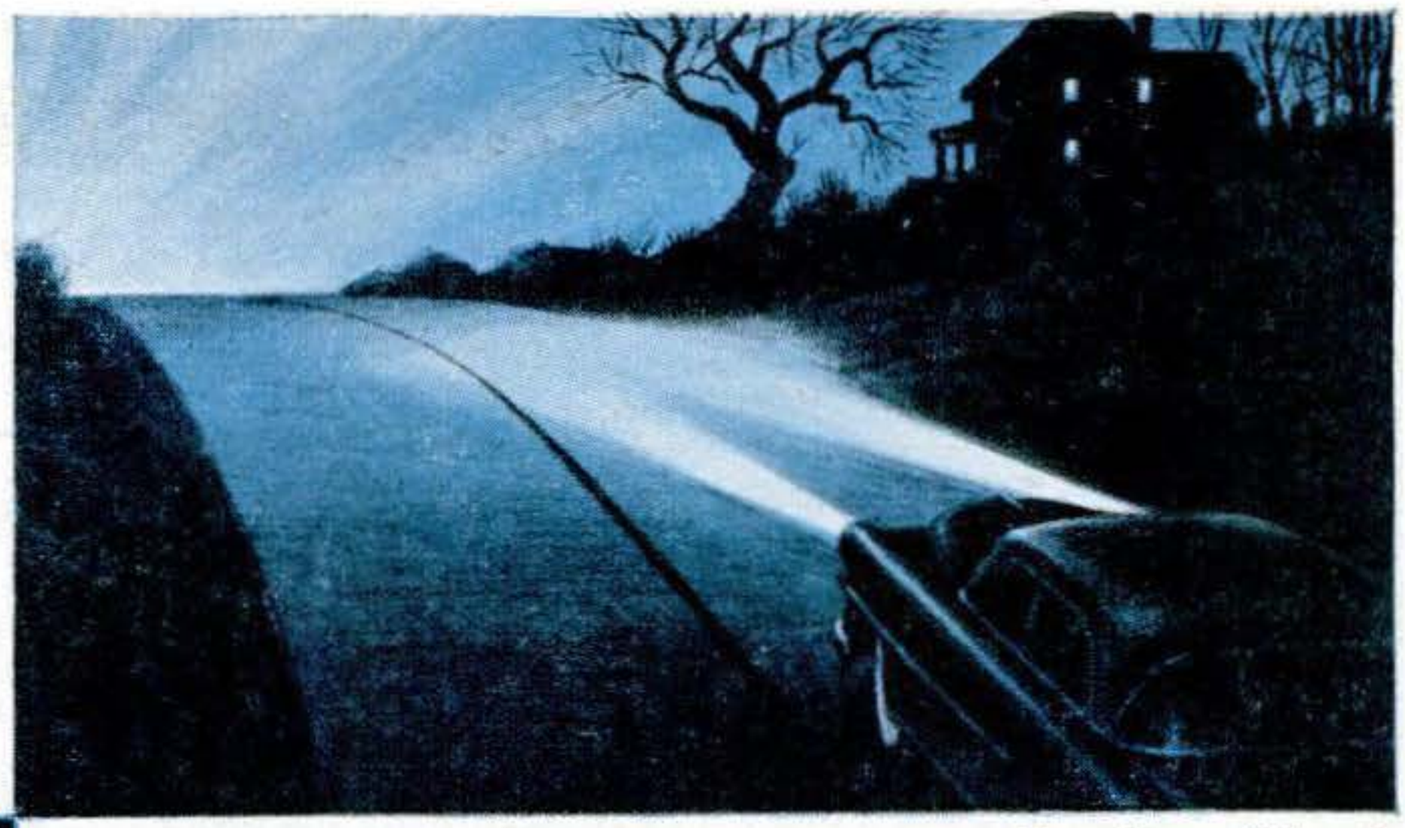
In a gasoline phase, Boss revamped a Crosley Hotshot by installing a Ford engine and transmission, a shortened Ford rear end, Mercury front axle and brakes, MG wheel hubs, and wheels of an Italian make. To facilitate the job, he casually cut the body apart behind the seat and later welded it back together. This automotive hybrid has run 11,000 miles to date.

Working at the other end of the scale, Boss builds superb models in miniature. A current project is a 1"-to-the-foot scale job of the Locomobile he rebuilt. Most modelmakers would be content with tires of plain rubber tubing; a few might turn wooden tires and carve the tread on them. But perhaps only Boss would make them by vulcanizing rubber in homemade steam-heated molds, as shown in the photos on this page.

[Continued on page 262]

Copyrighted material

How to Use Your Dimmer Switch



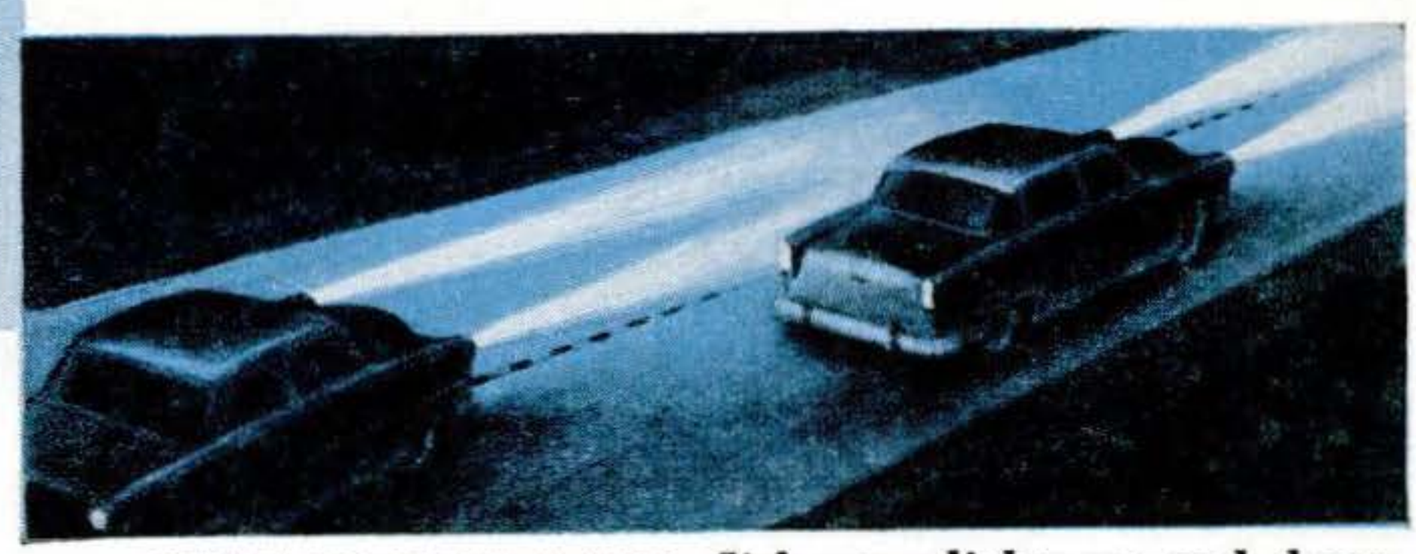
ON THE CREST OF A HILL or on a turn, the glow of headlights tips you off that a car is coming. It's a refinement of the art of dropping your beam to hit the switch before the other car comes into view.

WHEN HIGH BEAMS BLIND YOU, it's perfectly acceptable to flick your own brights a couple of times to nudge the other guy's memory. But blasting with your own high beam puts you among the fools who use the highways, some of them now dead. You should remember that a blinded driver instinctively pulls away from the edge of the road—into traffic.

A "ONE-EYED" DRIVER may not know that one of his lamps is shot. It's a courtesy of the road to flick your own headlights a couple of times to suggest to him that something is wrong.

WHILE TRAILING ANOTHER CAR, remember to switch down your beam to take the glare out of his mirror—a courtesy you would certainly appreciate if your positions were reversed. A trailing car's high beams can trouble you even if it's quite a distance behind.

SHOULD YOUR DIMS BURN OUT and you still must drive, turn your lights on and off momentarily to tell an approaching driver that you have troubles—and are not really the dope he may think you are.

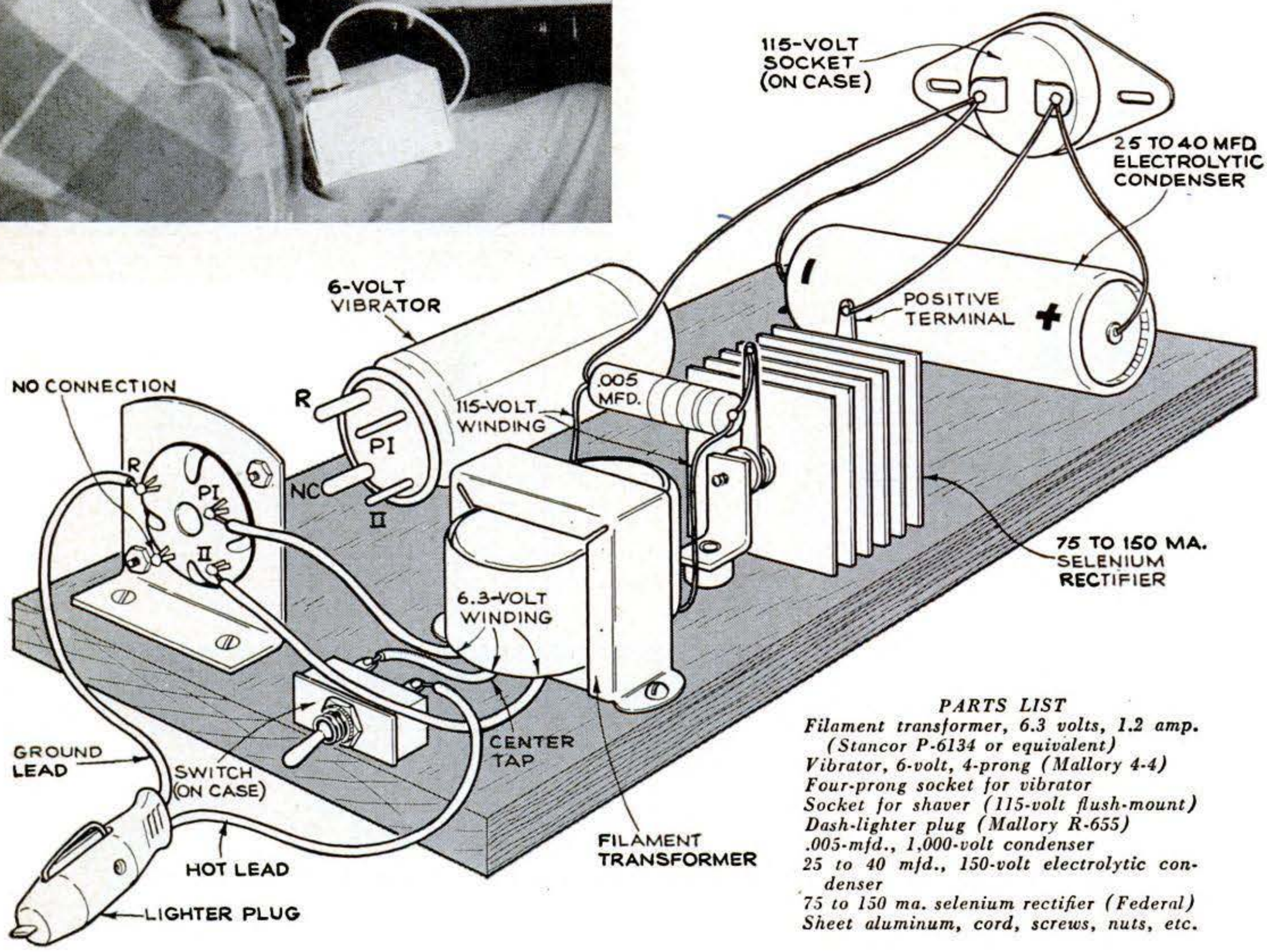


READY TO PASS A CAR, flick your lights up and down. Keep them down until you are abreast of him, then kick them to bright. If the other driver is as thoughtful as you, he will kick his down as you cut back in.

Copyrighted material

Two Ways to Get

A converter lets you run it from an auto's lighter socket.



PARTS LIST
Filament transformer, 6.3 volts, 1.2 amp. (Stancor P-6134 or equivalent)
Vibrator, 6-volt, 4-prong (Mallory 4-4)
Four-prong socket for vibrator
Socket for shaver (115-volt flush-mount)
Dash-lighter plug (Mallory R-655)
.005-mfd., 1,000-volt condenser
25 to 40 mfd., 150-volt electrolytic condenser
75 to 150 ma. selenium rectifier (Federal)
Sheet aluminum, cord, screws, nuts, etc.

ONCE your skin loves the touch of an electric shaver, you may dread using a blade on vacation.

With this midget converter my electric shaver plugs into the car cigarette-lighter socket to whisk away whiskers just as at home.

Parts for it cost less than five bucks. The gadget paid for itself on a five-week camping trip. Now I keep a shaver in the glove compartment to use while my wife drives me to the train. This dodge gives me five minutes' extra sack time.

A small radio filament transformer, connected backwards, boosts the battery potential to about 115 volts. The rectifier converts this back to direct current, and the big filter condenser smooths out the humps in it. Don't omit the little .005-mfd. condenser across the transformer; it reduces arcing in the shaver motor.

I mounted the transformer and condenser on a 4½"-square wood base, with a right-angle bracket to support the condenser. A simple boxlike cover was bent from aluminum to fit the base, with a hole in its top for the shaver socket. Another hole admits the cord from the lighter socket.

Don't plug in and switch on the converter unless the shaver is plugged in. And resist the impulse to take along your TV set or let your wife use an electric iron. The converter is only for flea-power jobs such as shaving your chin.—*Hugh Harvey, Scarsdale, N. Y.*

Copyrighted material

More from an Electric Shaver

A simple booster-rectifier will pep one up on house current.

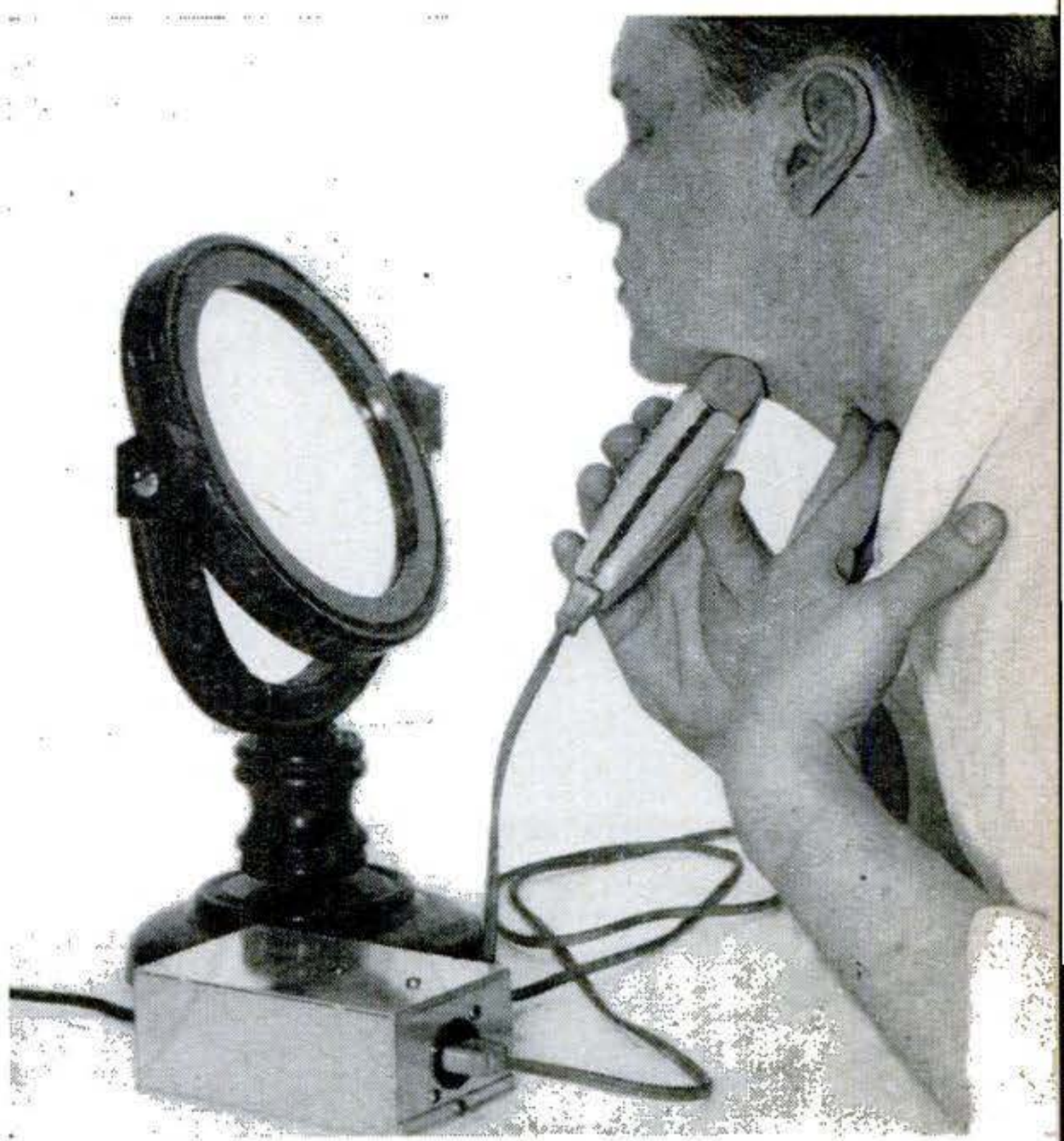
GOT an old shaver that's loafing? Or a new one you'd like to see work even better? Feed it direct current and it will shed whiskers up to twice as fast.

Except for those with vibrator-type motors, shavers run on AC or DC. But they run peppier on DC, giving faster, cleaner shaves. This little unit—a one-evening project—supplies DC.

It also provides a voltage boost, so if you live where line voltage is low, it will bring your shaver nearer peak performance. The condenser filtering action quiets much radio interference.

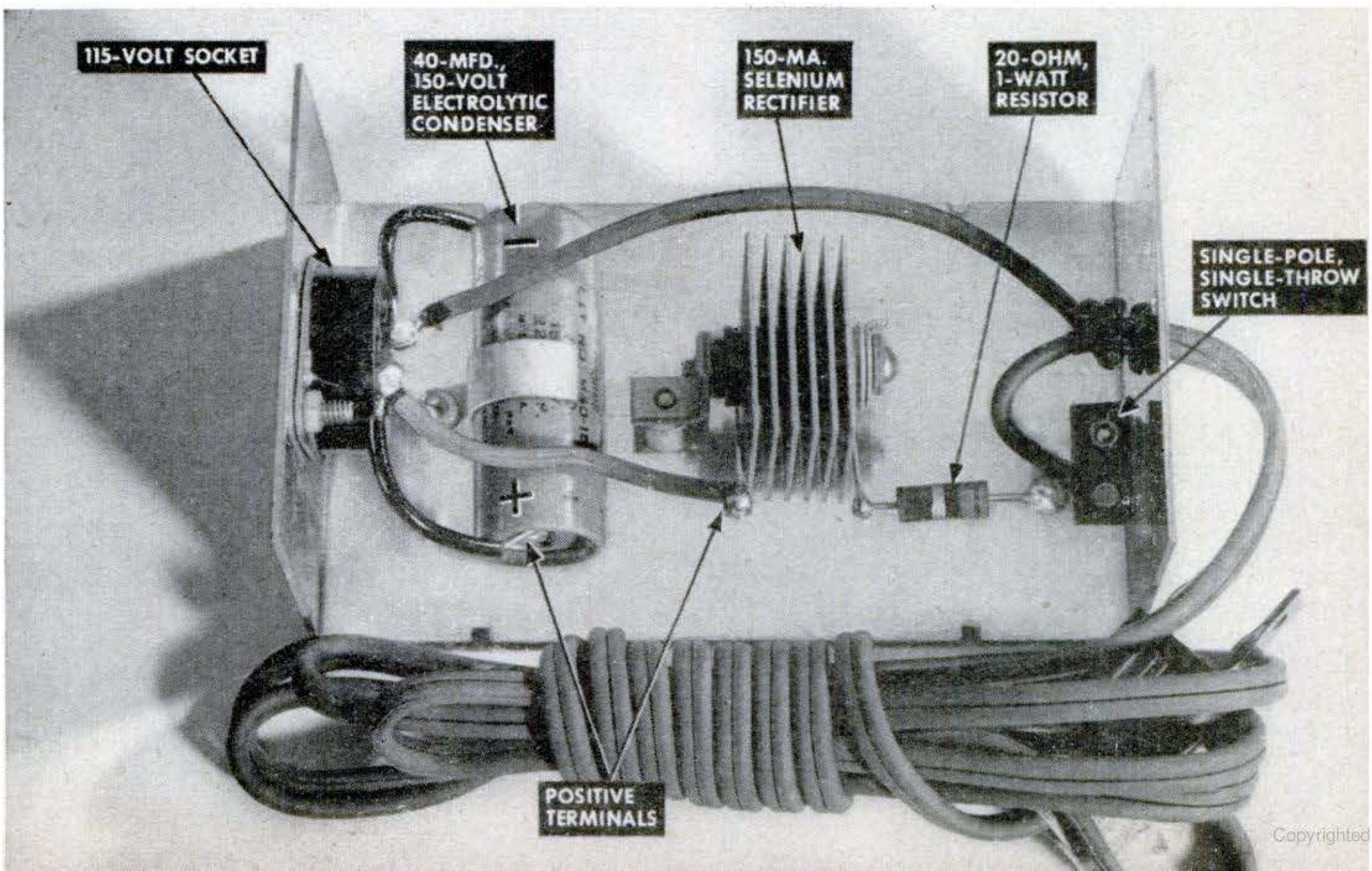
Any radio store has the parts. I made a unit with a 350-ma. selenium rectifier that no longer worked well in a TV set and a 40-mfd. condenser from a radio.

The base can be a board fitted with a cover or a U-shaped box bent from sheet metal. Mount the parts on this as shown in the photo below. Cover with a piece having flanges at right angles to the first. Connect the rectifier with its positive terminal on the same side of the socket as the plus side of the condenser. —*Marion L. Rhodes, Knightstown, Ind.*



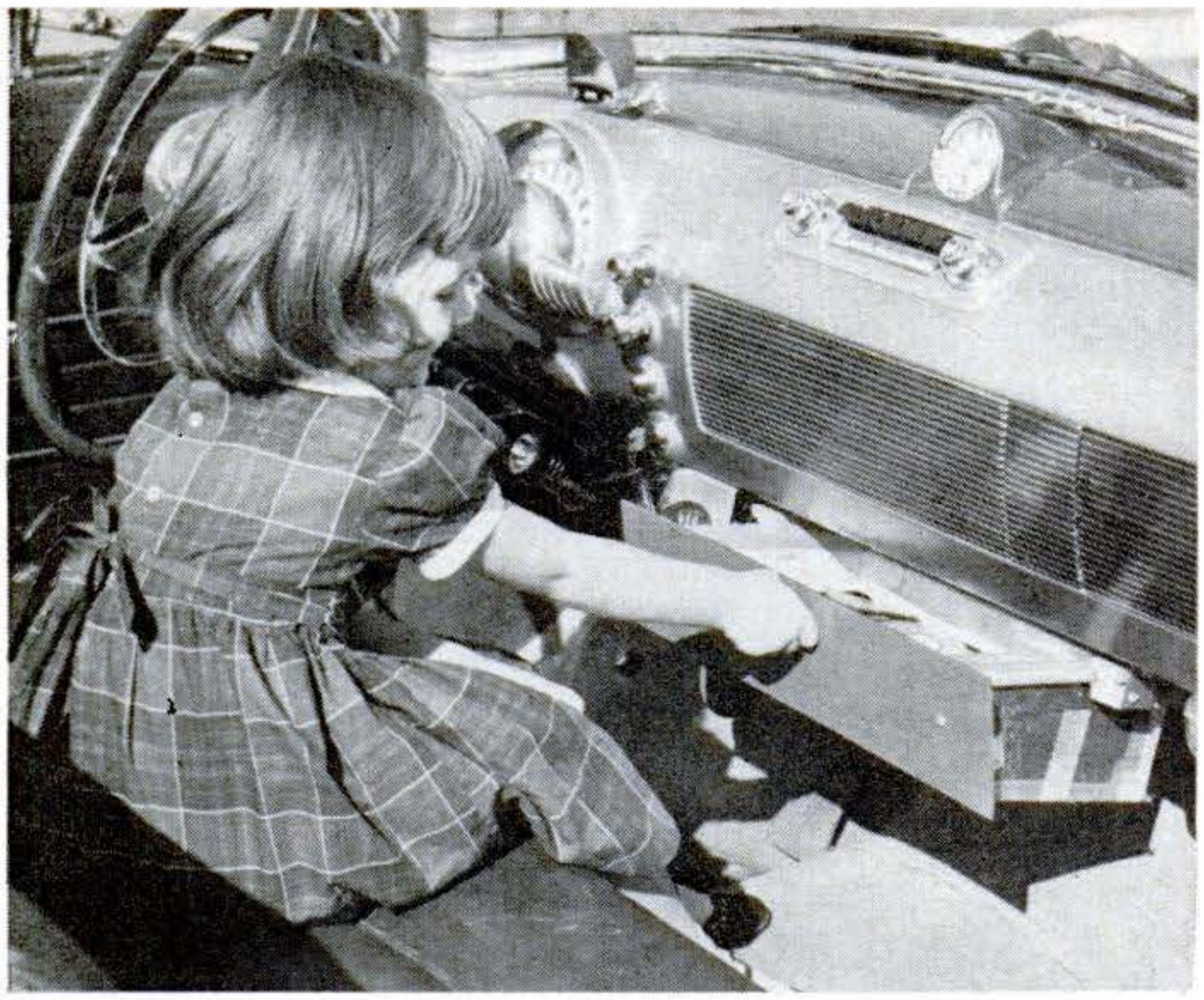
LUXURY SHAVING is yours at home, too. This rig boosts voltage, converts house juice to direct current. This gives most shavers new pep, yields a closer shave in less time.

EIGHT CONNECTIONS are all it takes, with parts in your junk box or from a radio shop. Wiring is so simple the outfit can be put together in an evening. But don't try to use it with a shaver having a vibrator instead of a motor. These are usually marked "AC only."



Copyrighted material

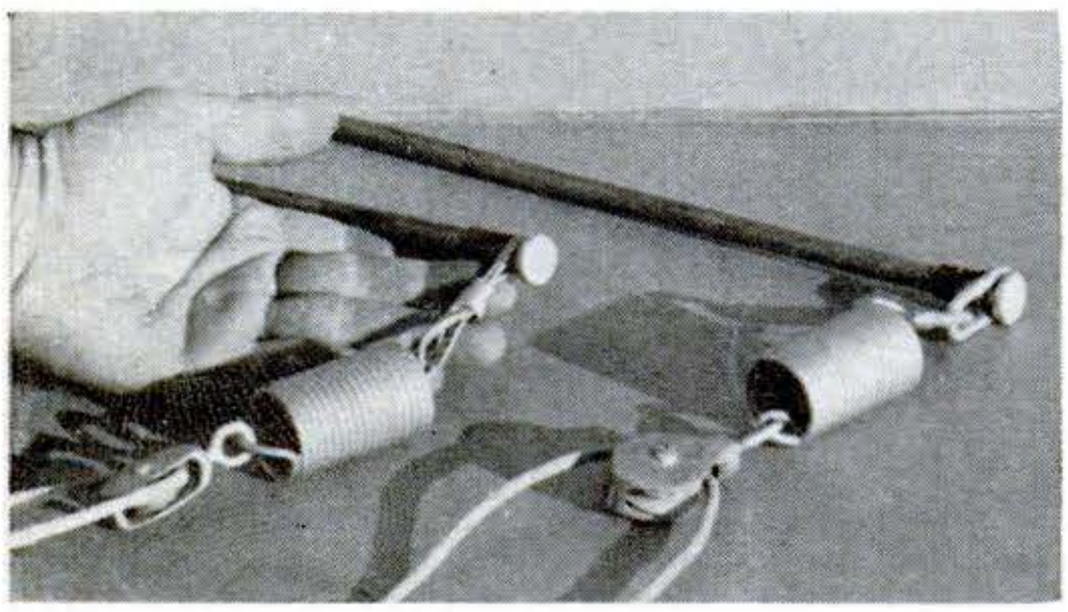
Drawer Under Dash Holds Glove-Compartment Overflow



THERE'S room under the dash for maps, sunglasses and the like if your glove compartment is always full of other items.

This composition-board drawer rides on wood runners mounted on the radio bracket and held to the dash with self-tapping screws. Assembly is chiefly with cellophane adhesive tape, which also seals the joints.

A slight pitch of the runner grooves toward the front of the car eliminates the need for a catch. The drawer face hides the runners from view and also serves as a stop.—*Tom Root, Plymouth, Ohio.*



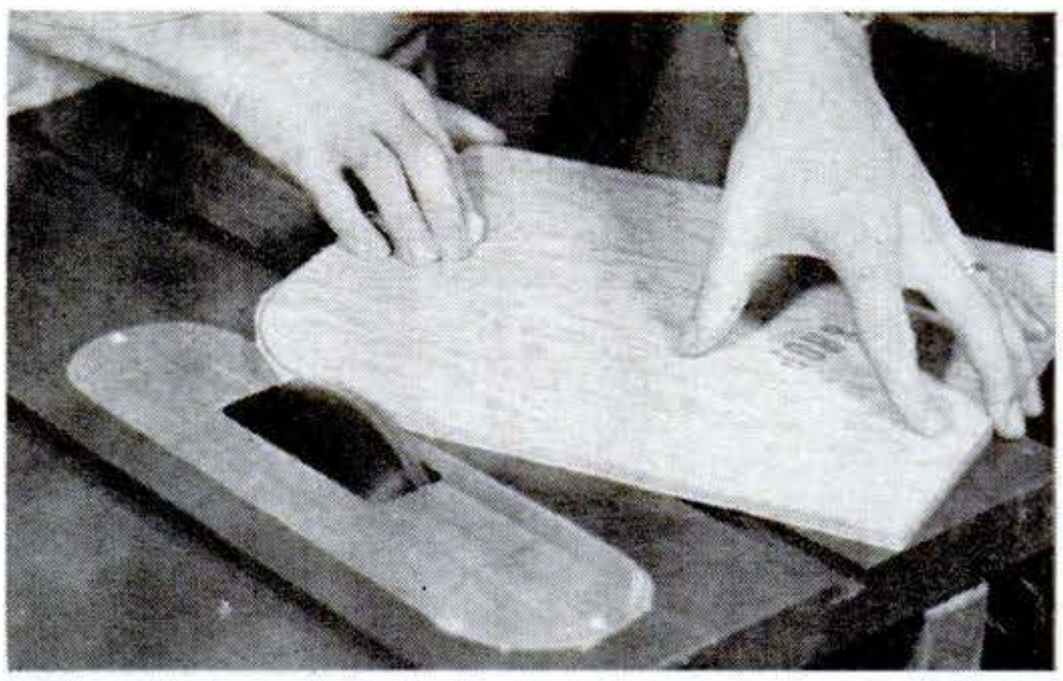
Links Help Adjust Tent Rope

SPRINGS used to adjust tent or awning tension are easy to attach to metal stakes if you fit one end with links from an old chain, as at left. Use links that will go over the shank and be held by the head. Twisted wire can be used if you don't have a chain. Swivel pulleys at the other end of the springs are a convenience.—*Clinton R. Hull, Santa Ana, Calif.*

▶▶▶A strong magnet in a cloth bag containing valuables will let you hide them in such unlikely spots as the underside of a sink. Don't include a watch; the magnet may ruin it.—*Andrew Vena, Philadelphia.*

Dowel Planter Gauges Depth

A SHORT dowel, hollowed at one end to keep a seed trapped, makes easy work of planting. Marked in inches, it gauges the depth you push seed into the soil. Set it in a length of broomstick for a handle.—*David W. Deamer, Westerville, Ohio.*



Dado Head Doubles as Jigsaw

You can cut perfect circles or outside curves without a jigsaw or bandsaw, if you have a bench saw equipped with a dado-head attachment.

First, you trim the stock close to the line of the desired cut with a number of passes with the regular saw. Then saw to the scribed line with the dado head. The finished edge of the curve will ride on the side of the dado blade, which thus acts as a guide.—*Vern Forsberg, Seattle.*

Copyrighted material

New Photo Film Has Cat's Eyes

Shutterbugs can now click away with only the dimmest peep of light, using sensitive Tri-X.

By George H. Waltz Jr.

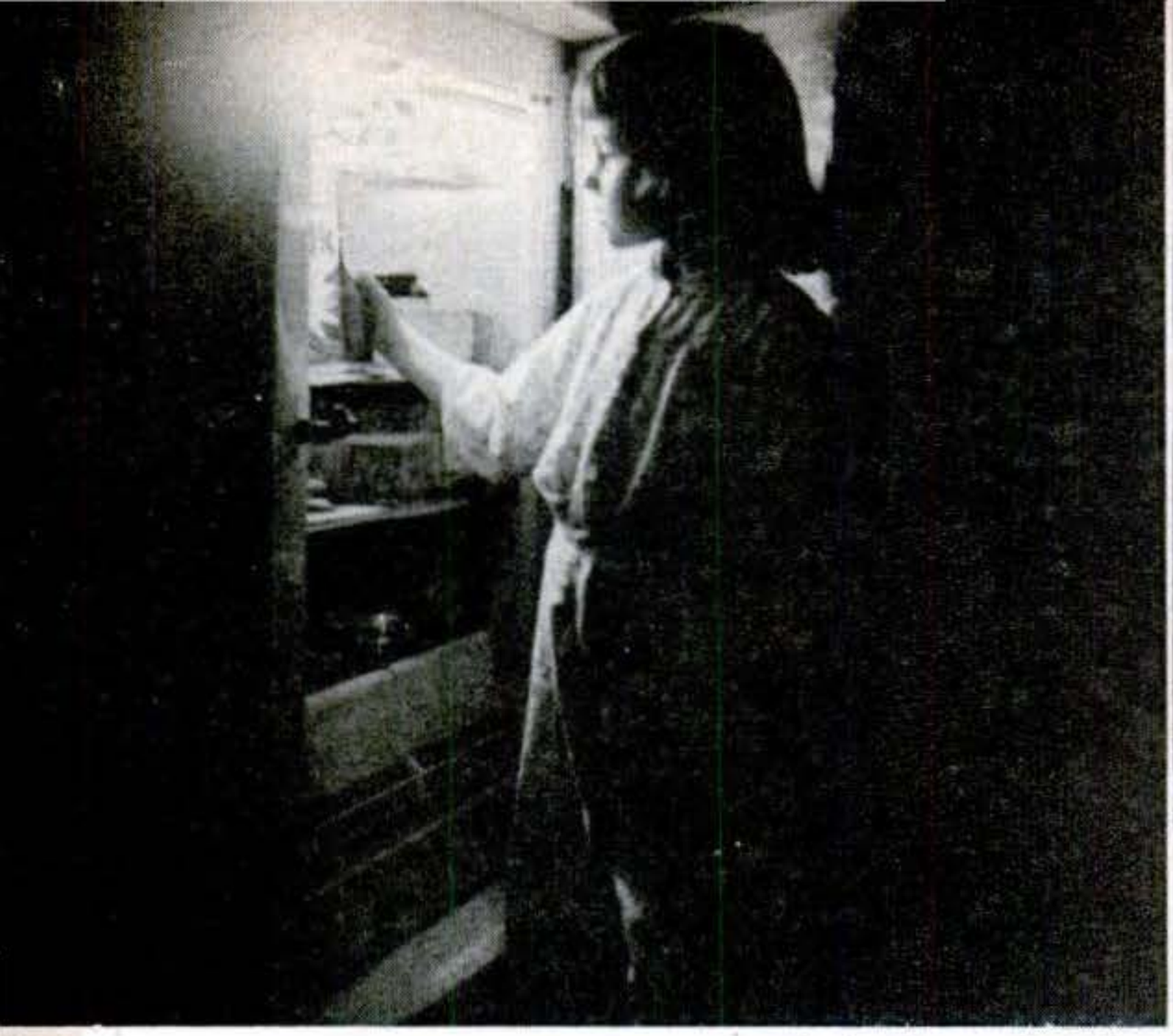
WELL, they have finally gone and made a camera film for the dubs. The real dubs, I mean—guys like me who snap the shutter at twilight and then blame the camera or film when they get only blanks.

The new film will forgive almost any photographic sin you can commit. It will take snapshots indoors about as easily

Candle-power portrait

What you can do with the new Tri-X film is dramatically illustrated by the portrait above. It was made by the light of three candles arranged to provide three-point lighting. The actual shooting setup is shown below. The camera was propped up on a book and hand-steadied, the picture taken at an aperture of f/3.5, at 1/10 sec.

Copyrighted material



A REFRIGERATOR LIGHT provided the only illumination for this dramatic snapshot, made while the youngster was getting her before-bed snack. The camera was set at f/3.5 and 1/25.

CANDID INDOOR SHOTS are no problem. This one, made in a New York department store on a dull snowy afternoon when there was little daylight, was shot at f/5.6 and 1/50.

as you have been accustomed to taking them outdoors. No flash bulbs. No photofloods. Just shoot.

Daylight coming in the window, or a table lamp or two, provide enough illumination for Kodak's new Tri-X. Snap the shutter. The film does the rest.

"That," remarked my wife, as I set up my camera one evening next to a table lamp, "will never work."

I wondered about it, too. The table lamp was one of those three-way affairs, with a top wattage of 150. I turned it up high. I loaded the camera with Tri-X and seated a friend in a chair next to the lamp. His cheek was 22 inches from the lamp shade. I set up my camera on a tripod three feet from my subject.

Now, get this: it was night. The only other light in the room came from a hanging lamp, also a three-way affair turned up to 150 watts, that was fully 10 feet away. It had a shade that cut its illumination in half.

I cocked the shutter and began shooting. Keeping it at 1/10 second, I tried f/12, then f/22 and then f/8.

I had my film developed at the corner drugstore. It uses run-of-the-mill assembly-line developing and printing. I gave no special instructions other than that I wanted fine-grain development.

A day later I had the results. When I called for my pictures and opened the envelope, I got a pleasant shock. This couldn't be true. All three shots were acceptable—not good by professional standards, perhaps, but good enough for me.

Then I enlisted the help of PSM staff photographer Bill Morris, and, together, we really put Tri-X through its paces. With my lens wide open at f/3.5 and the shutter at 1/25, I shot a dozen daytime pictures of my youngster playing in her room. The only light was the daylight from two windows.

The pictures just about equalled anything I'd ever taken with flash. What's more, the daylight gave a soft and natural effect. There were no deep shadows and no strained expression on my 6½-year-old, who has become quite allergic to having flash bulbs popped off in her face.

From then on we shot just about anything, anywhere, to see what the film could do—daytime, night, indoors, outdoors.

We also tried Tri-X in a moderately priced box-type camera. Under fairly good light conditions indoors, the film yielded exceptional pictures.

For the shutterbug who likes to play

Copyrighted material

EVEN NEW YORK'S SUBWAY sat for its portrait when the photographer loaded up with Tri-X. Here, his camera set at f/3.5 and 1/25, he got a shot of the turnstiles at 42nd Street.

"YOU CAN'T TAKE SNAPSHOTS IN HERE," said the N.Y. Central employee on the right. "There's not enough light in Grand Central Station." He hadn't heard of Tri-X. Well, here it is.

LIGHT FROM WINDOWS shown, and one off to left, provided the only illumination for this snapshot made at f/5.6 and 1/50. Film's wide latitude helps to counteract exposure errors.

around with portrait lighting, Tri-X has another advantage. Because of its speed, ordinary 150-watt mushroom-shaped reflector bulbs that you can buy for a dollar or so in your hardware store and that last for hundreds of hours can be used for portrait illumination.

With a 150-watt spot and two 150-watt floods, which will cost you a total of $3.30, you can obtain three-point lighting effects. What's more, because of the relatively low level of illumination, the highlights and shadows on the subject are easier to judge and balance, the subject is not subjected to the hot glare of conventional photo bulbs, and you don't have to worry about blowing a fuse because of excessive electrical load on your house wiring.

You don't need a tripod, either. In spite of the relatively low illumination, Tri-X will allow you to shoot at a speed (1/25 or faster) that makes hand-holding your camera possible.

For baby pictures, indoors or out, the new film has the speed that has long been needed. Just shoot. You don't have to worry about the subject moving.

The new film—available in 35 mm., 120 and 620—is rated at ASA 200 for daylight exposure (and that means the daylight coming through your windows when you shoot indoors). That's twice the recommended rating for the older Super XX film. But experience shows that, if anything, the new film is considerably faster than that. Many professionals are setting their light meters at ASA 650, shooting their pictures accordingly, and then developing the film for from 13 to 15 minutes in D-76 developer held at 68° F.

In any case, the film has tremendously wide latitudes both in exposure and development. As a matter of fact, I found that if you rely on your eye to gauge the available light, the tendency is to overexpose rather than underexpose. You can overexpose the film as much as four or five times, however, and still get printable negatives.

Even in bright sunlight the film will provide usable negatives over a wide range of exposures. But an amateur who uses a simple box camera with a fixed exposure of f/11 and a fixed speed of 1/50 will probably play it safer if he switches back to Super XX or Plus X for his outdoor vacation snapshots. The recommended speed with Tri-X for light subjects in bright sunlight is f/22 at 1/100 sec.

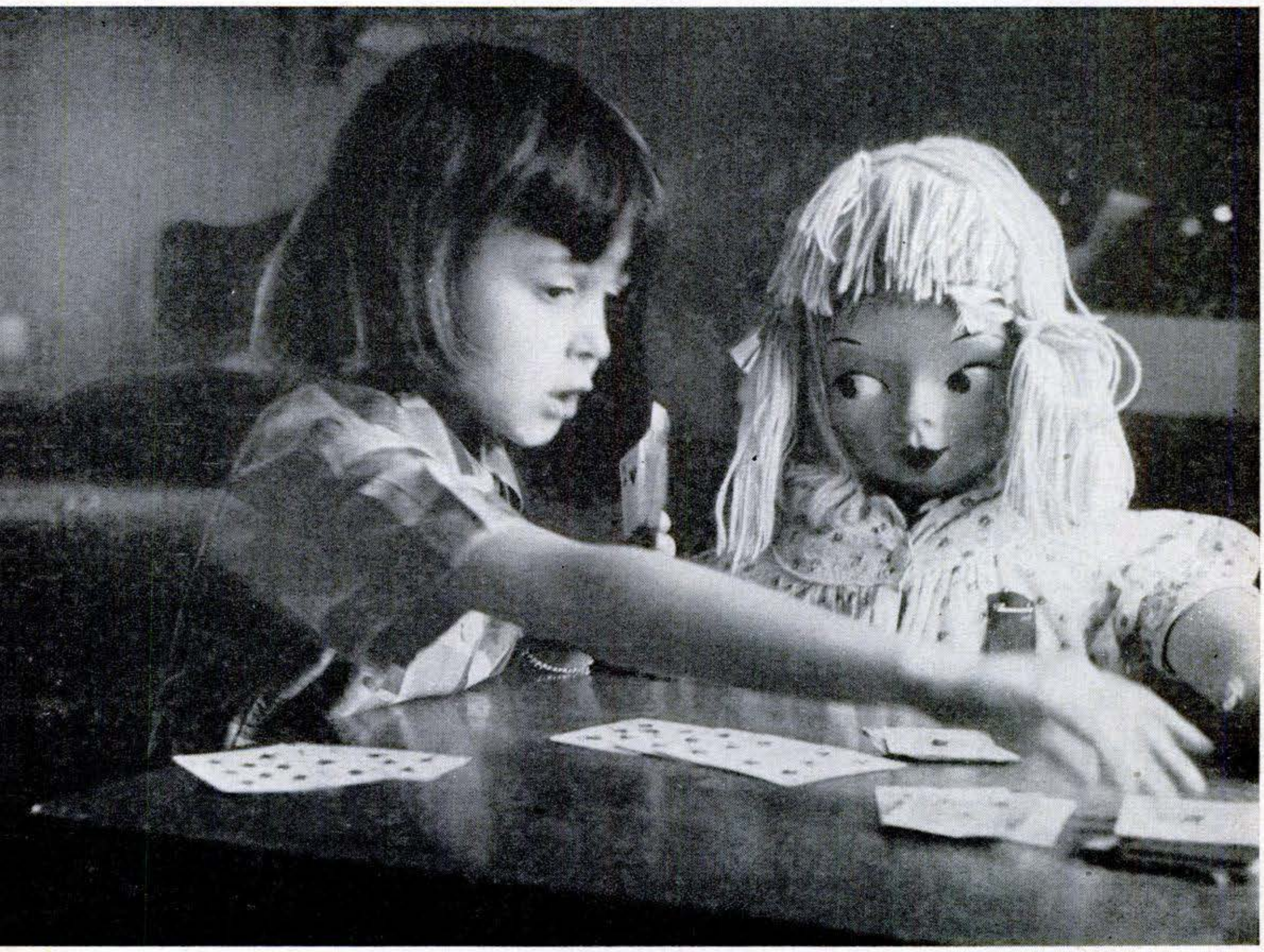
Normally, in fast films that have been brought out in the past, any appreciable gain in film speed has meant an equal gain in the graininess of the negatives. In Tri-X, however, the extra graininess is almost negligible.

LOW-COST PORTRAIT LIGHTING is possible with the new fast film. Lights can be inexpensive, long-life 150-watt reflector bulbs. The portrait at left was made with a hand-held camera set at f/8 and 1/50.

Copyrighted material

BOX-CAMERA PORTRAIT. As shown above, the only illumination for this informal portrait was from two 150-watt bulbs balancing the window light. Yet there was enough light to use a moderately priced box camera.

Light from two windows was enough to get this action picture at f/5.6 and 1/50. END



Copyrighted material

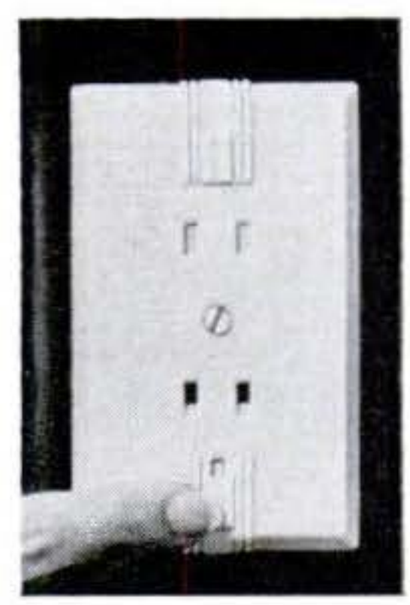
New for the Handy Man

1. Cutter Trims and Edges. Turned on its side, this rotary clipper edges along walks and borders. Flop it on its face and it trims around trees and up against walls and fences (inset). A single nut locks the handle in either position. The blade is mounted on a shock-absorbing hub that gives against obstructions.

Further information about the products described on this and the following page can be obtained from: 1. Hirsh Mfg. Co., P.O. Box 265, Garland, Tex.; 2. Engineered Instruments, Inc., 932 Soto St., Hayward, Calif.; 3. Cable Electric Products, Inc., 234 Daboll St., Providence, R. I.; 4. Arsco American, Inc., 3308 Edson Ave., NYC 69; 5. American Screen Products Co., 807 N.W. 20th St., Miami, Fla.; 6. Portable Electric Tools, Inc., 320 W. 83rd St., Chicago 20; 7. (left) Moto-Mower Co., Richmond, Ind.; (center) McCulloch Motors Corp., 6103 W. Century Blvd., Los Angeles; (right) RPM Mfg. Co., Lamar, Mo.

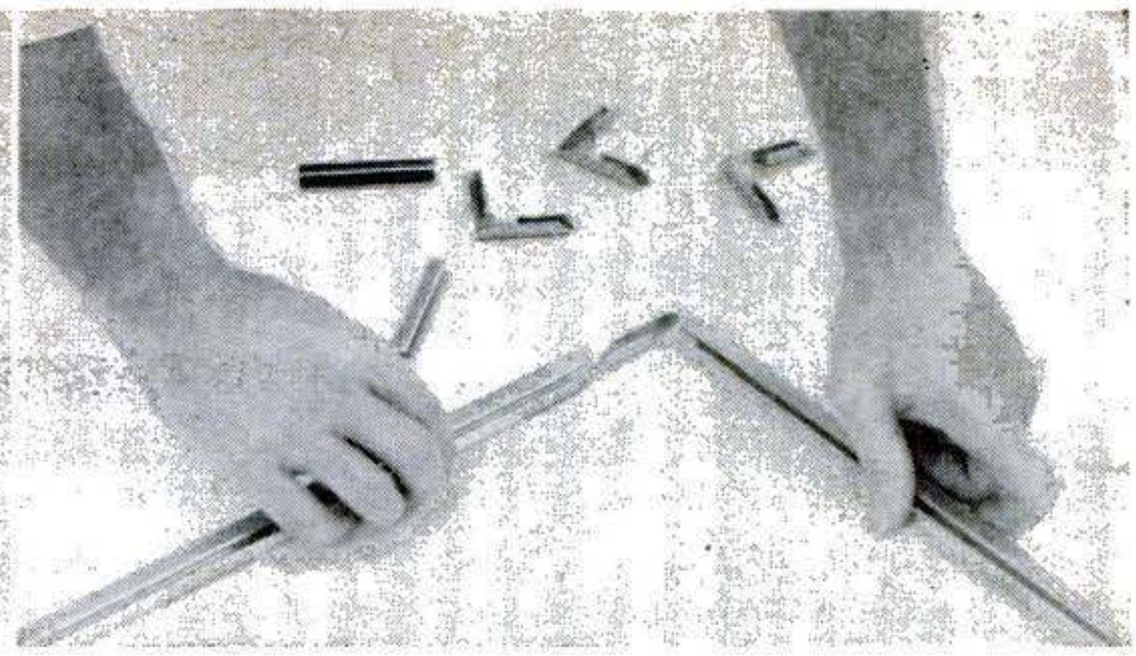
2. Garage Opener Lights Up. This remote radio control not only swings up your garage door as you approach, but it pops on a light, too. Mounted on the ceiling, it has a ¼-hp. electric motor that operates a drawbar on the door by a chain drive. You can open or close the door manually, overriding the mechanism at any time.

3. Outlet Is Shockproof. Children can't stick their fingers or playthings into this outlet plate. As you pull out a plug, a spring-loaded shield slides across behind the holes, sealing them shut. The plastic plate fits over any standard double outlet.

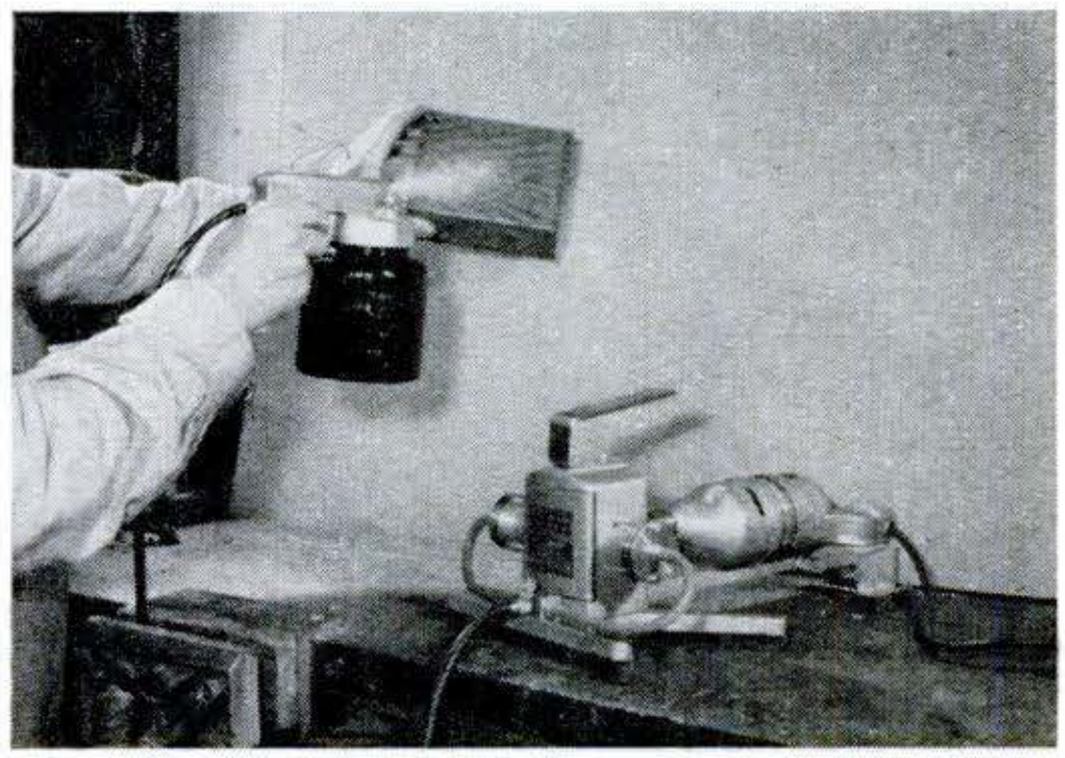


4. Drawing Stand Fits on a Desk. Screw a board to this aluminum stand and you have a drawing table that tilts or swivels to any position. Rubber-tipped tripod legs protect desk tops. The stand can be taken apart for easy carrying or storing.

Copyrighted material

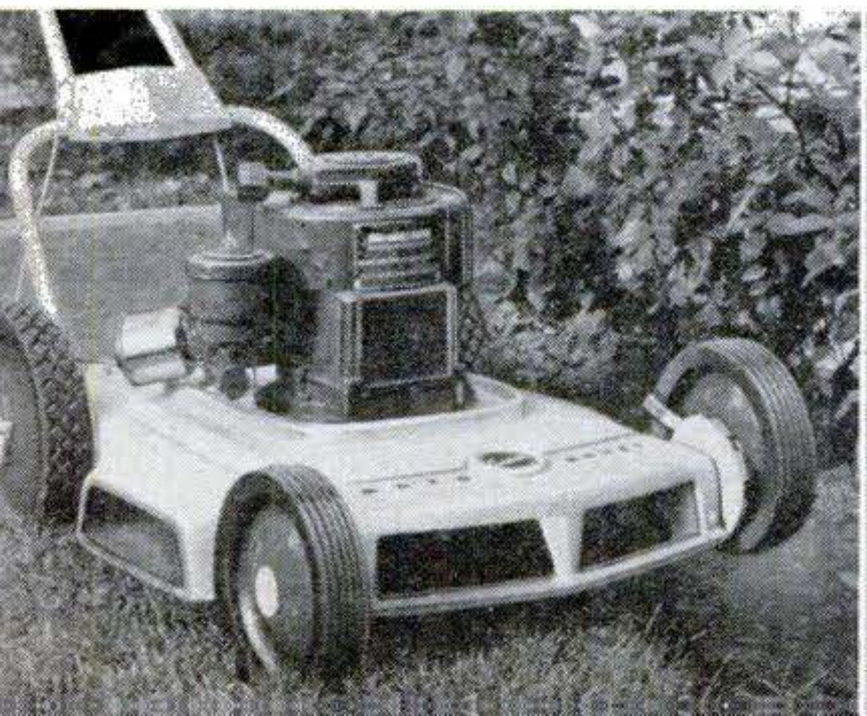


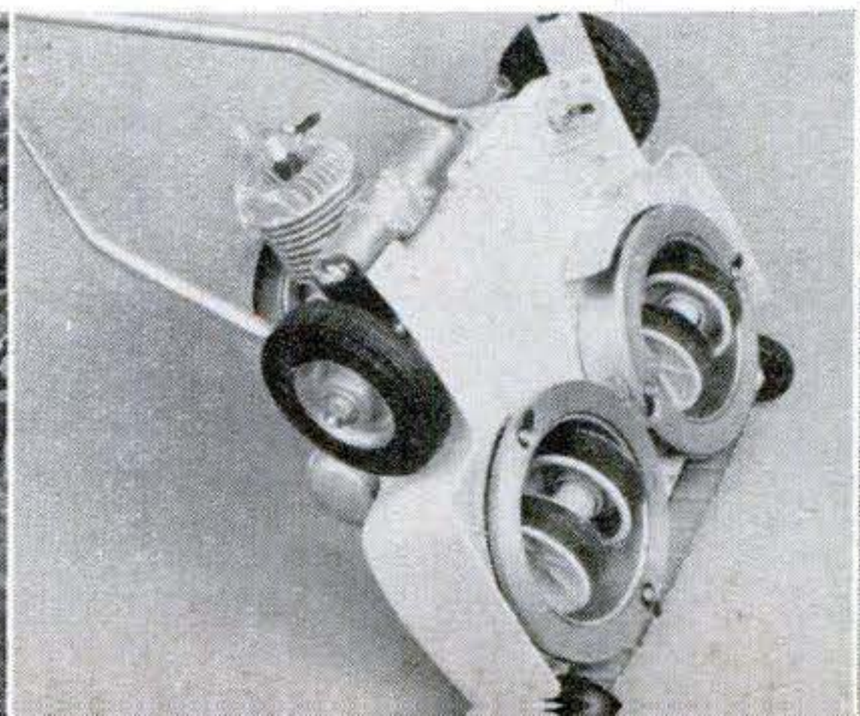
5. Kits Build Screens Fast. You can make screens in a few minutes to fit any size windows you want with these kits. Aluminum frame pieces are first sawed to the lengths you need, using a miter box that's supplied with each set. Corner clips are slipped on to hold the pieces together (above)—no special tools are required. Glass-fiber screening is then stretched over the frame and held tight by hammering thin aluminum strips into grooves (at left), and the excess is trimmed off with a razor. Hardware for installing the rustproof, non-staining screens is also included.

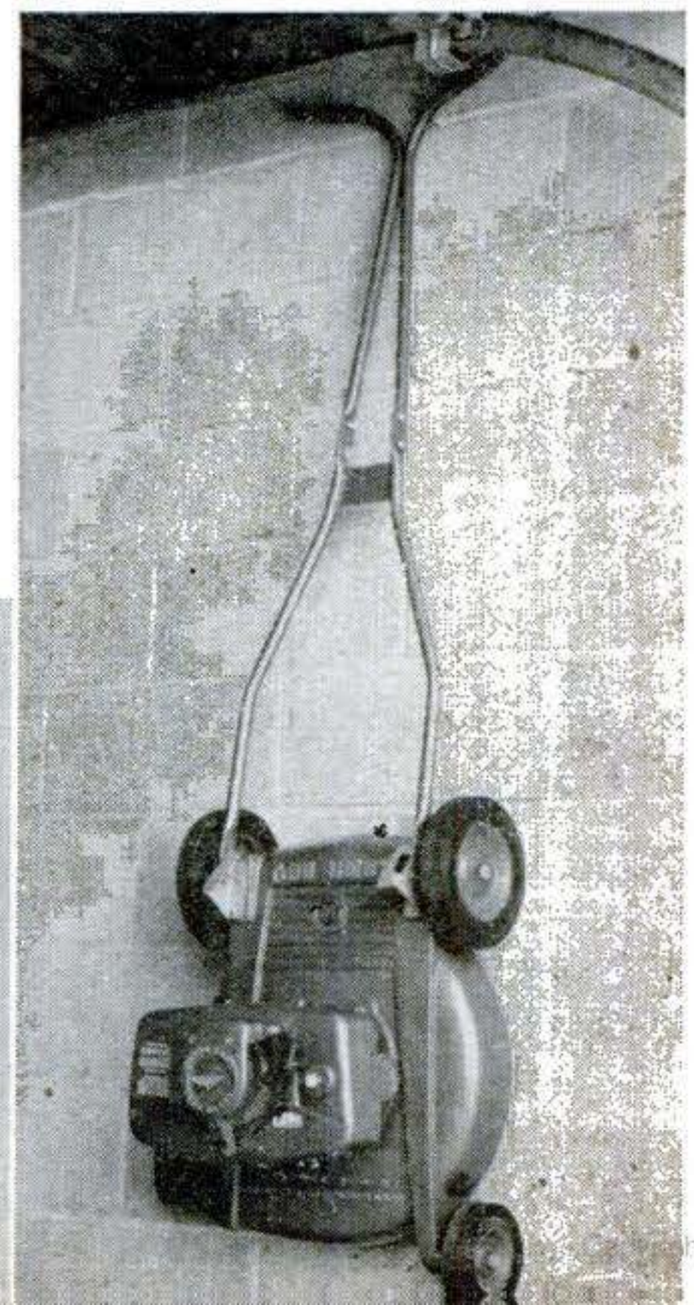


6. Drill Sprays Paint. Any ¼″ electric drill will power this portable sprayer for paint or insecticides. The compressor, chucked in the drill, exerts air pressures up to 80 lb. It will also inflate auto tires, footballs and play pools.

7. Mowers Do New Tricks. Retractable wheels on the mower at left below lift out of the way so that you can trim up to borders without digging into soft soil or striking obstructions. Either front wheel can be moved independently, or both can be raised or lowered to adjust cutting height from 1″ to 3″. The twin cutters on the mower at center below have their own wheels set inside them to keep the blades at an exact height, preventing uneven mowing or scalping. Storing the mower at right is easy with a new pivoted handle that lets you hang it flat against a wall.





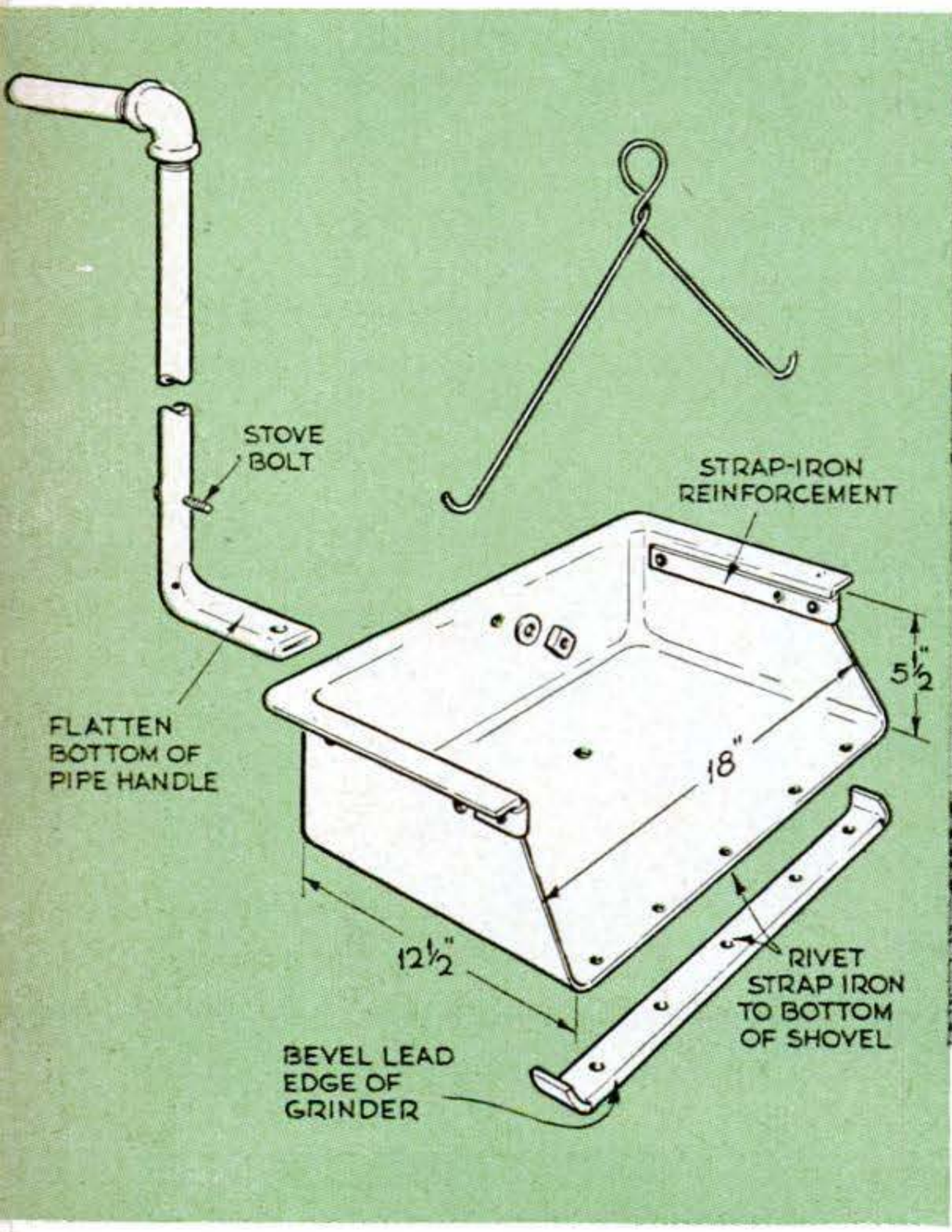


Building Attachments for a

Look in your scrap bin. Maybe you'll find most of the parts for these rugged garden tools.

By Barney Slawson

THESE sturdy garden-tractor attachments won't scrape the bottom of your pocketbook. Most of the parts are probably no farther away than your metal scrap bin—castoffs like half-inch pipe nipples, elbows and tees, a bicycle



OPERATING THE SHOVEL is fun. It is filled by lifting slightly on the shovel handle. This tilts the cutting edge into the ground—and up comes the dirt, with the greatest of ease.

Power Shovel

BEHIND a 2½-hp. tractor this power shovel does an impressive job of ditching and snow- and earth-moving. It will scoop up almost a cubic foot at a time, and it dumps its load almost automatically.

The main part of the shovel is a five-gallon stove-oil tank of the type used in many interior installations. Its one-piece back- and side-wall stamping is a natural for conversion, but a similar scoop could be formed from flat stock, bent and riveted to shape.

If you use a stove-oil tank, remove one of the long sides with a hacksaw. Make the cuts through the side walls on a slight diagonal, as shown in the drawing. Next, cut out the flat face of the tank, without removing the heavy flange that attaches it to the press-formed section.

Reinforce the lip of the shovel with

Copyrighted material

Garden Tractor

fork and a five-gallon stove-oil tank. The only items bought for the shovel, cultivator and dozer blade shown at the right were a four-foot length of chain with swivel clips, a set of sweeps, a pair of strap hinges and a few bolts and rivets.

POWER SHOVEL

CULTIVATOR

DOZER BLADE

TO HAUL THE LOAD AWAY, the handle of the tractor is simply lifted, raising the plow beam and the attached yoke. This oil-tank shovel holds almost a cubic foot of earth.

UP AND OVER goes the shovel when the tractor handle is pressed down, dumping the dirt where it's wanted. With room to turn the tractor, it loads and unloads on the fly.

an 18″ length of strap iron whose cutting edge has been beveled on a grinder, or with a file. Attach it with ¼″ rivets. Use similar strap-iron sections to reinforce the shovel sides where the tongue of the shovel passes through them.

Shape the tongue from a 3′ length of ⅜″ rod. Twist a large loop at its center so it can be fastened to the tractor's plow beam with a half-twist clevis.

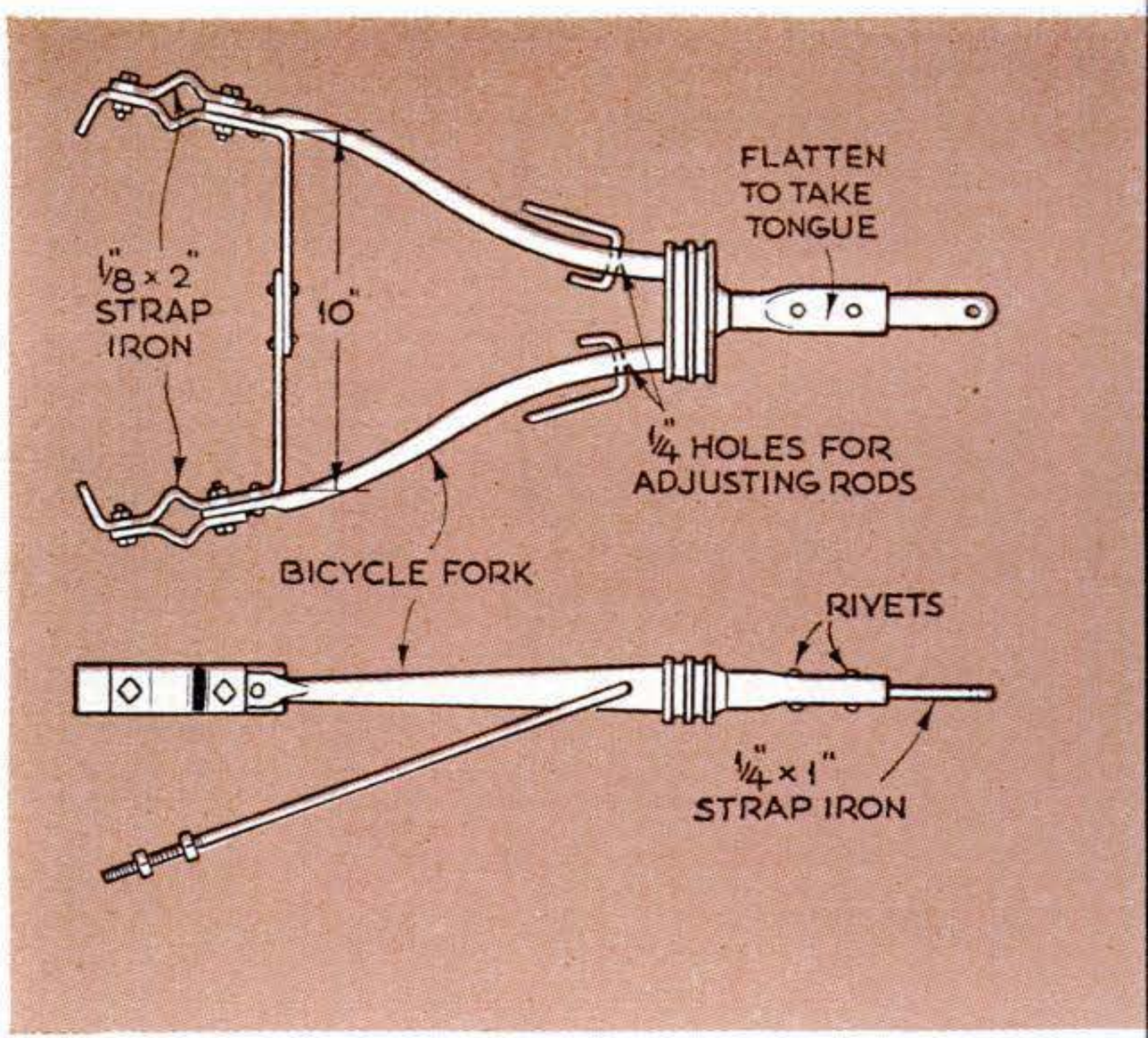
For the handle use a 27″ piece of ½″ water pipe. Hammer the lower half-foot flat and angle it over to fit under the shovel. Rivet it in place and drill a hole through the pipe and the back of the shovel just below the flange to take a short stove bolt. Attach an elbow to the upright pipe and thread a 6″ pipe nipple to the other end for use as a handgrip.

The three simple operations used to fill, transport and dump the shovel are shown in the photos above. Unless you are using the scoop as a snowplow, leave the colter on the plow beam, to stabilize the load.

Please turn the page for more tractor attachments

Copyrighted material

Cultivator



WITH an old bicycle fork, some strap iron and a few pipe fittings, you can be breaking ground with this sturdy cultivator a few hours after you start construction.

Begin by cutting a 12″ tongue from ¼″-by-1″ strap iron. Then flatten the upper end of the bicycle fork's handle-bar tube. When the tongue will just fit into the resulting sleeve, drive it a few inches into the tube and secure it with rivets.

Mark the location for the kingpin hole on the tongue. With the hole drilled and the pin in place, the fork should engage the frame plate on the tractor when it is held horizontally. If it does not, bend the tongue to make the necessary adjustment.

Uncouple the tongue again and clamp one leg of the fork in a vise, putting the bite about 1″ below the fork arch. Bend the leg outward by pulling on the handle-bar tube and tongue. Bend the other leg until the two ends of the symmetrically curved members are 10″ apart.

From ⅛″-by-2″ strap iron cut two 14″ lengths and two 3″ lengths. Clamp the 14″ pieces together and, starting ½″ from one end, drill four ¼″ holes through them at ½″ centers. These holes will be used to adjust the width of the cultivator.

Now, separate the strips and bend them to the contours shown in the upper drawing above. Bend the 3″ strips to form the outer sections of the clamps that will grip the sweep holders.

To assemble the frame, bolt the two long sections of strap iron together through holes that give them a spread of 10″. Spring the ends of the fork over them and line up the axle holes (or slots) of the fork with the forward clamp holes. Position the short clamp sections and bolt all of the pieces together. Then drill

Dozer Blade

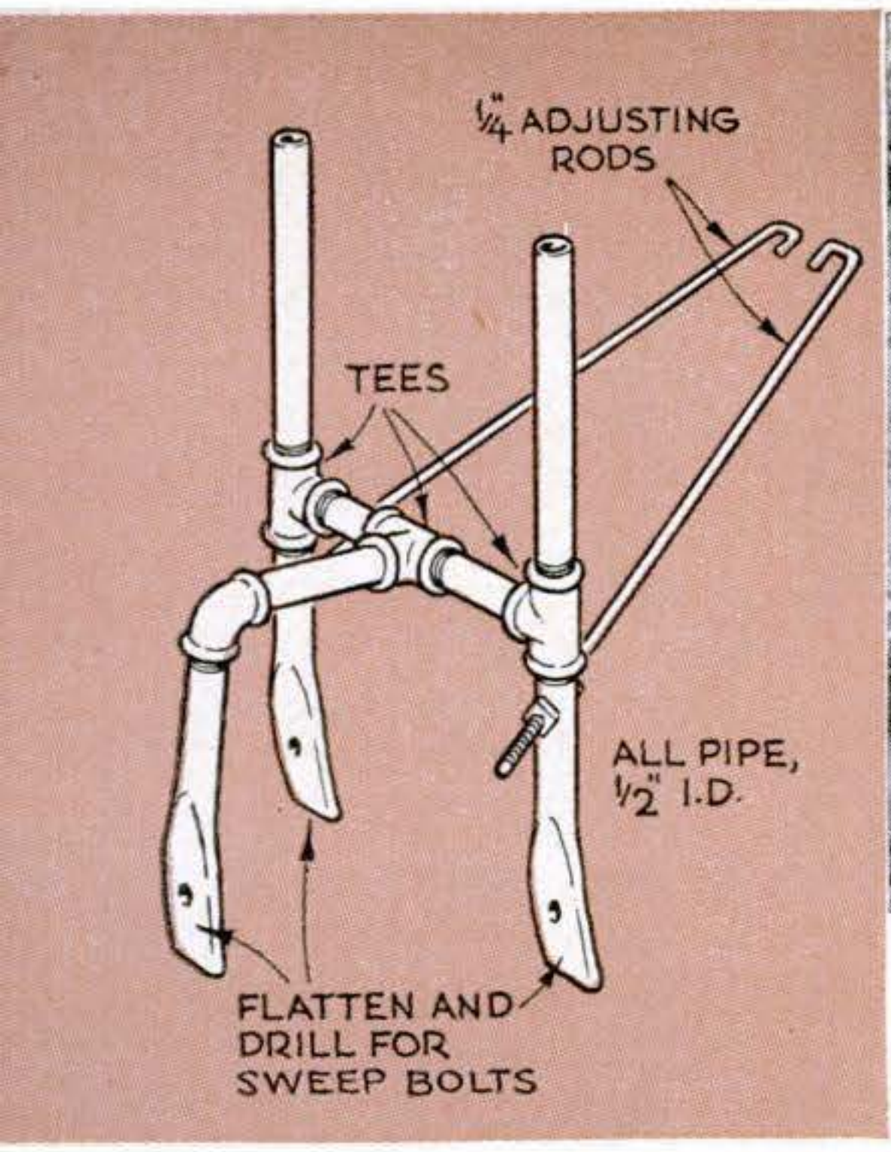
HANDY for leveling rough spots in gardens and lawns, and back-filling small trenches, this dozer blade can be made in an hour.

Use a 30″ length of two-by-eight for the blade. Cut a slightly angled recess along its leading edge to take a length of strap iron 1½″ wide. Bevel the bottom edge of the strap iron and drill and countersink holes for the flathead screws that attach it to the wood.

Two 6″ strap hinges form a hanger to suspend the blade from the tractor's plow beam. Fasten the hinges to the top of the blade, back to back and the width of the plow beam apart. Bore aligning holes in the free ends of the hinges for a ⅜″ bolt which completes the hanger assembly. Finally, drill a hole near each end of the blade just above the strap iron and insert eyebolts.

To adjust the blade to the cross-angle and pitch needed for any particular dozing job, use a 4′ length of chain with a clip at each end. Wrap the center of the chain around the clamp that holds the colter to the plow beam. When the right amount of linkage has been taken up on both sides of the clamp, attach the clips to the eyebolts.

Copyrighted material



CULTIVATOR IS COMPLETELY ADJUSTABLE. The pitch of all three sweeps is controlled by the two diagonal rods. The rear shovel holder may, in addition, be set independently. The sweep spread is quickly increased by realigning the cross-frame holes and inserting longer pipe nipples in the holder.

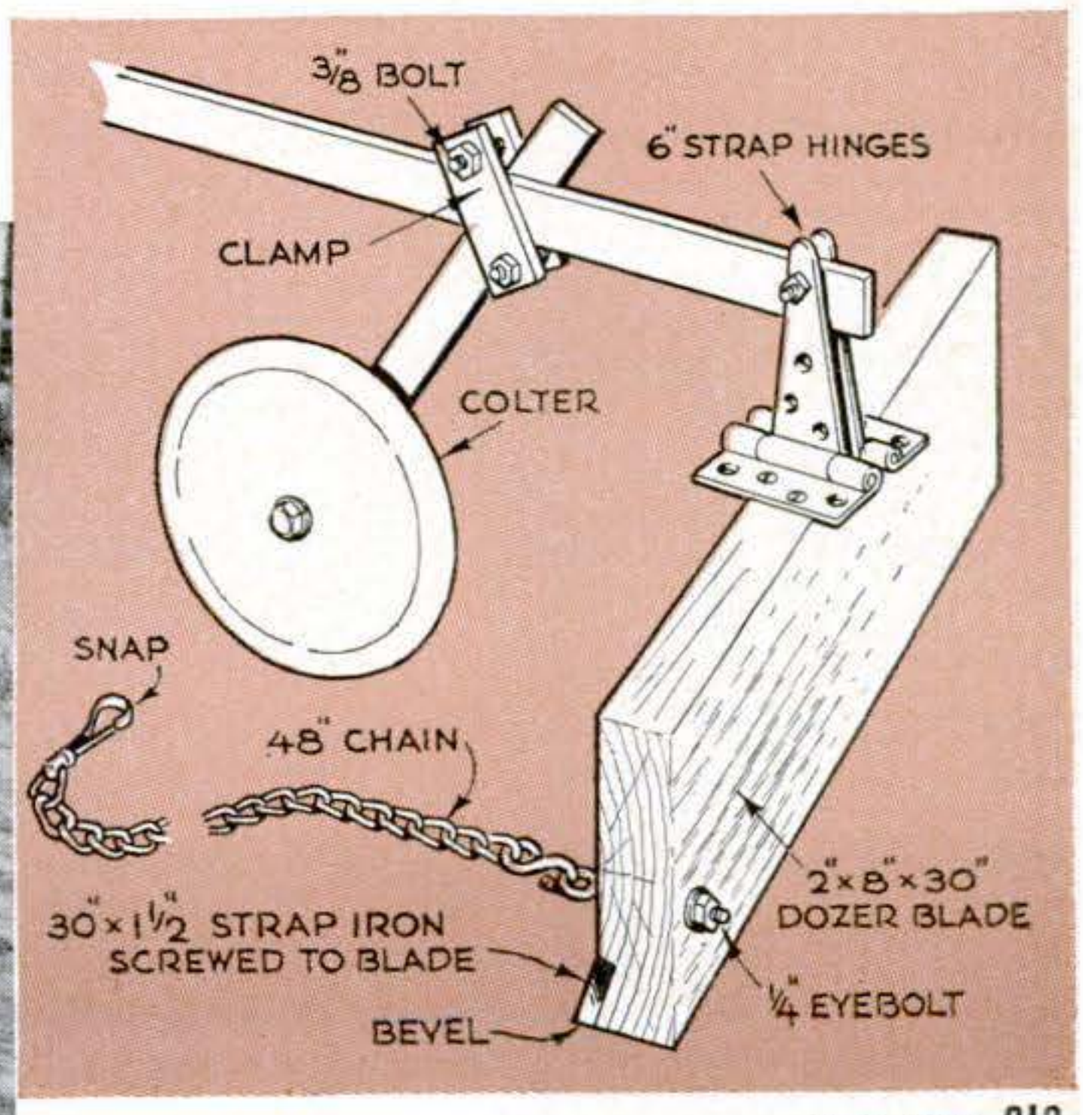
another pair of holes through the fork sides and the long strap sections just ahead of the clamps. Bolts passed through these holes will hold the fork and strap-iron parts in rigid alignment.

The sweep holder is a simple, H-shaped assembly of ½" piping and tees, with a third tee cut into the center of the cross member to support a trailing shovel holder made from two pipe nipples and an elbow. Flatten the lower ends of the vertical pipe sections and drill holes in them for the sweep bolts.

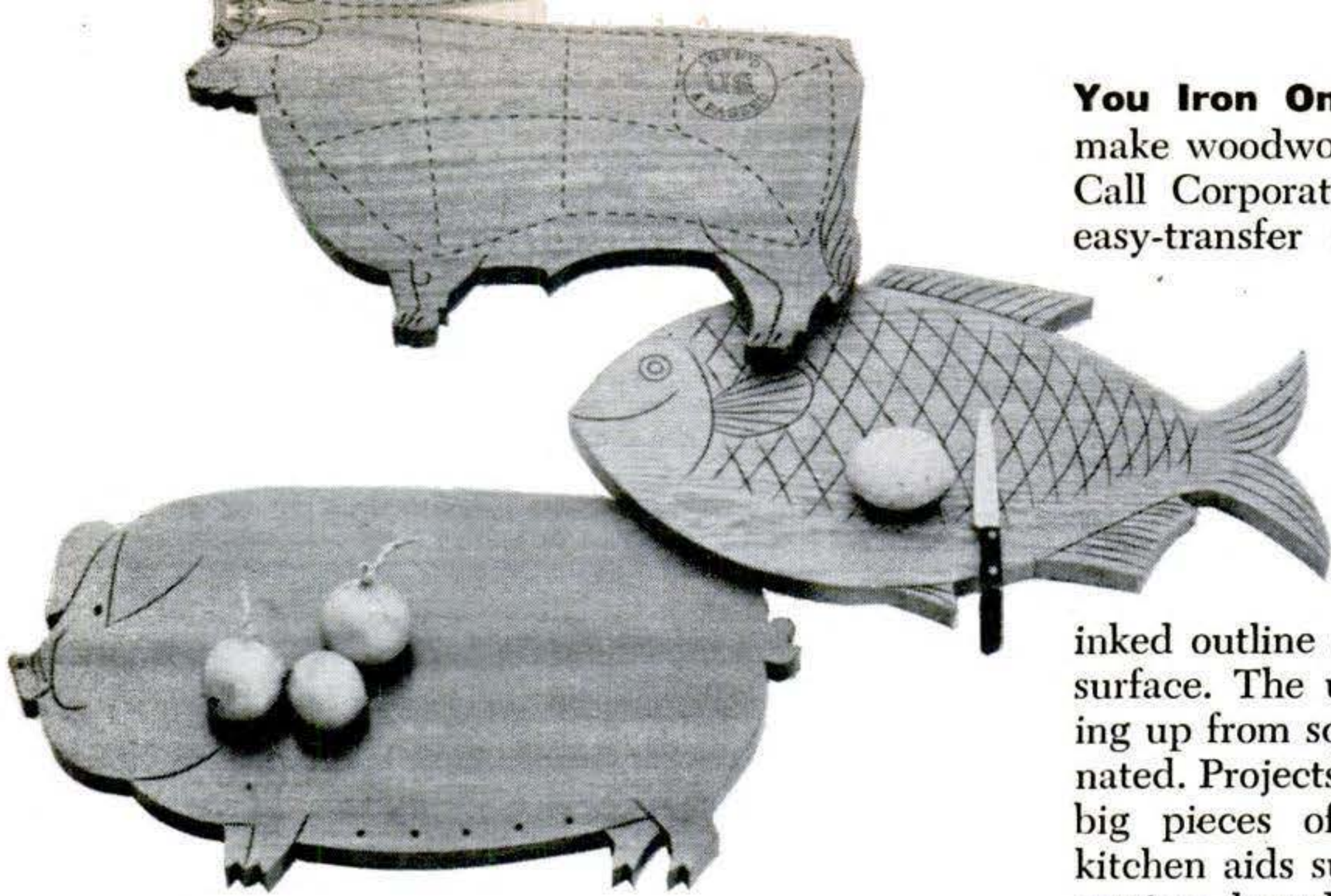
Two lengths of drill rod control the pitch of the sweeps. These are passed through holes drilled through the outer sweep holders just below the tees, then angled over and sprung through holes in the legs of the fork, about an inch behind the fork arch. Cleat the forward ends of the rods to hold them in place, and thread the sections of the rods that project behind the sweep holders to take adjusting nuts.

With the shovels adjusted to a depth that lets them clear the ground when the tractor handles are raised, your cultivator is ready to roll.

REAR-MOUNTED DOZER BLADE wipes out tractor tracks and makes control easy. See how the weight of the load pulls the wheels into the ground to give them maximum traction.



Copyrighted material



You Iron On the Patterns. To make woodworking easier, the McCall Corporation has adapted the easy-transfer feature of its dress patterns for use on wood in the home workshop. A medium-hot iron is run over a full-size pattern placed on the wood. This leaves an easy-to-follow inked outline of the pattern on the surface. The usual tracing or scaling up from squares are both eliminated. Projects available range from big pieces of furniture to small kitchen aids such as the decorative cutting boards shown here. The patterns are available from McCall's Patterns, 230 Park Ave., New York, and many stores throughout the United States.

What's New in Patterns

Furniture by Top Designers. Want to build your own modern furniture? You can use plans created by six of the country's leading designers—among them Russell Wright, whose drop-leaf table cart you see at right. Designers of other pieces are Peter Hunt, a decorated chest; Freda Diamond, a drop-leaf coffee table; George Nelson, a storage wall; William Pahlmann, a room divider; and Edward Wormley, a screen-bar. Sponsored by U.S. Plywood Corp., plans and instructions are available at lumberyards and power-tool stores.

Patterns for Decorations. Homeowners who have plywood interior walls can use new full-size patterns to rout pictures right into the wall surface. The decorations can also be applied to doors (left), furniture, screens, wall plaques, built-ins and other furnishings. The patterns are traced directly on the surface. You then etch out the design with an electric routing tool. Patterns and instructions are supplied by the Easi-Bild Pattern Co., Pleasantville, N. Y. Both modern and traditional designs are available.

Copyrighted material

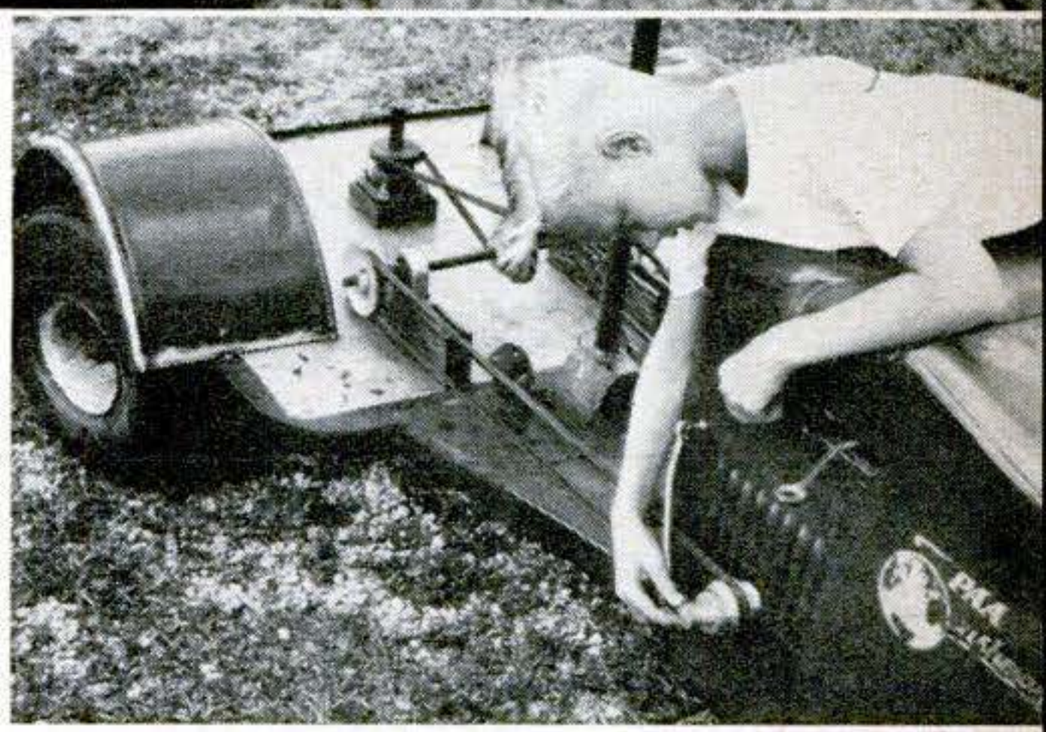
A Motor Scooter Mows Their Lawn

It covers the ground at a fast clip— and never lacks for volunteer drivers.

WITH his three acres of submarginal wild-grass lawn taking regular toll of his power mower, Bill Truxall built a tougher one from an airport motor scooter. At 10 m.p.h. it takes two hours to do a job that took the conventional model all day. It's simple enough to be run by his wife or sons.

A Pan American industrial engineer at Miami, Bill bought an old three-wheel scooter for $71. For roughly $20 more he obtained from hardware and auto-parts stores, machine shops and junk yards the necessary parts for converting.

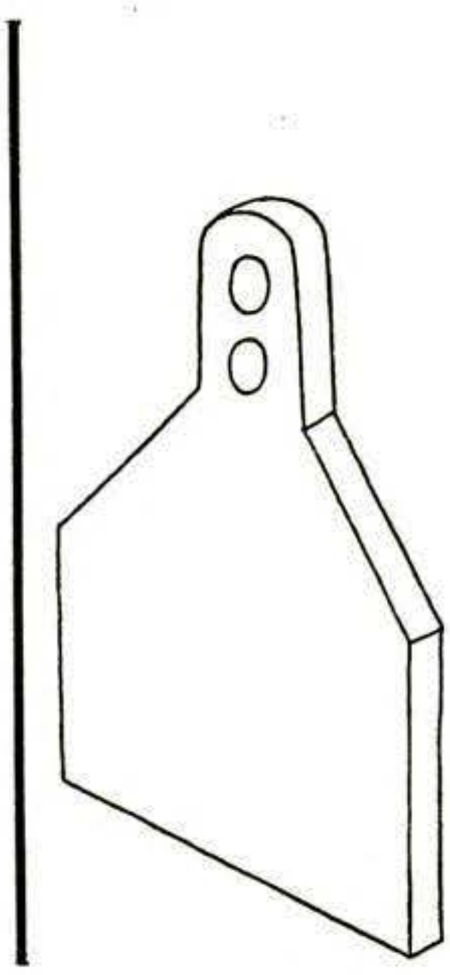
He replaced the delivery body with a sheet of boiler plate, and mounted two pillow blocks in the center for a bearing. On the bottom he hung a cutting blade made from the sharpened leaf of an auto spring, and connected its shaft by pulleys and V belts to the drive shaft which he extended from under the seat. Then he added a pulley and a shaft clutch. *—Jim Martenhoff, Kendall, Fla.*

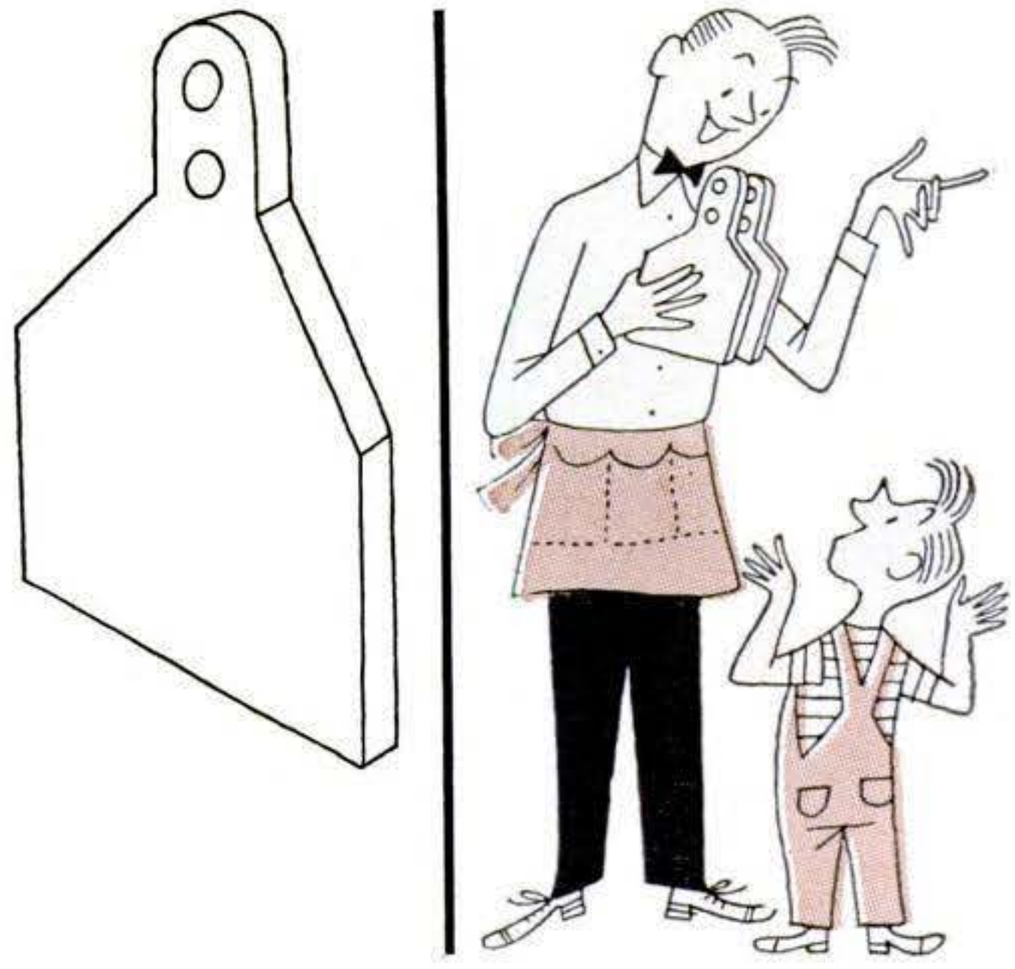


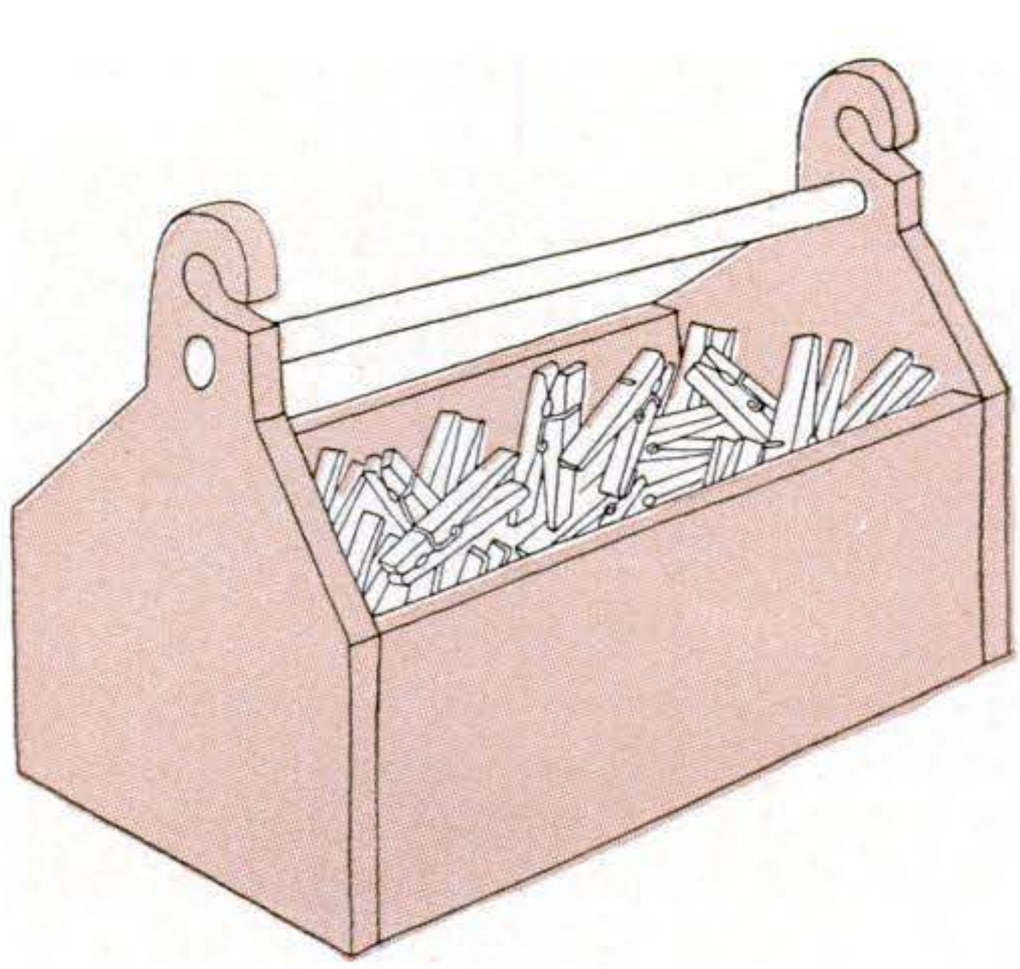
LUXURY ITEM on scooter mower is shaft clutch (top) that disengages drive to blade. Guards over this and the forward belt are a needed safety measure. Business end of the mower is 30" cutting blade (below) made from old auto-spring leaf.

By Roy Doty and G. D. Lynch

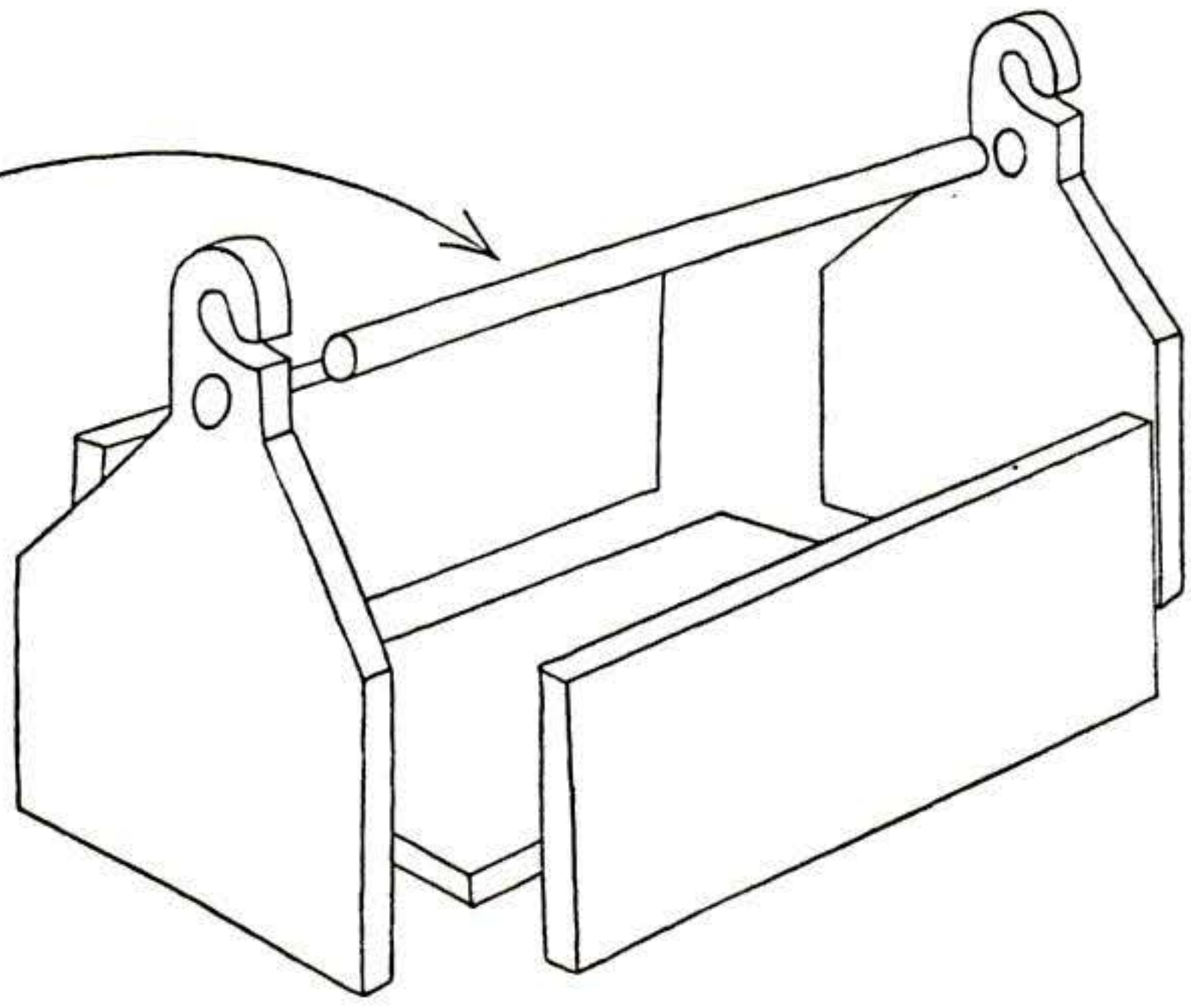
Wordless Workshop







Copyrighted material



Next Month: A tip-proof holder to safeguard flowerpots

Copyrighted material

Want to hunt uranium? The Atomic Energy Commission developed the circuit for this new

Super Geiger Counter

By Howard G. McEntee

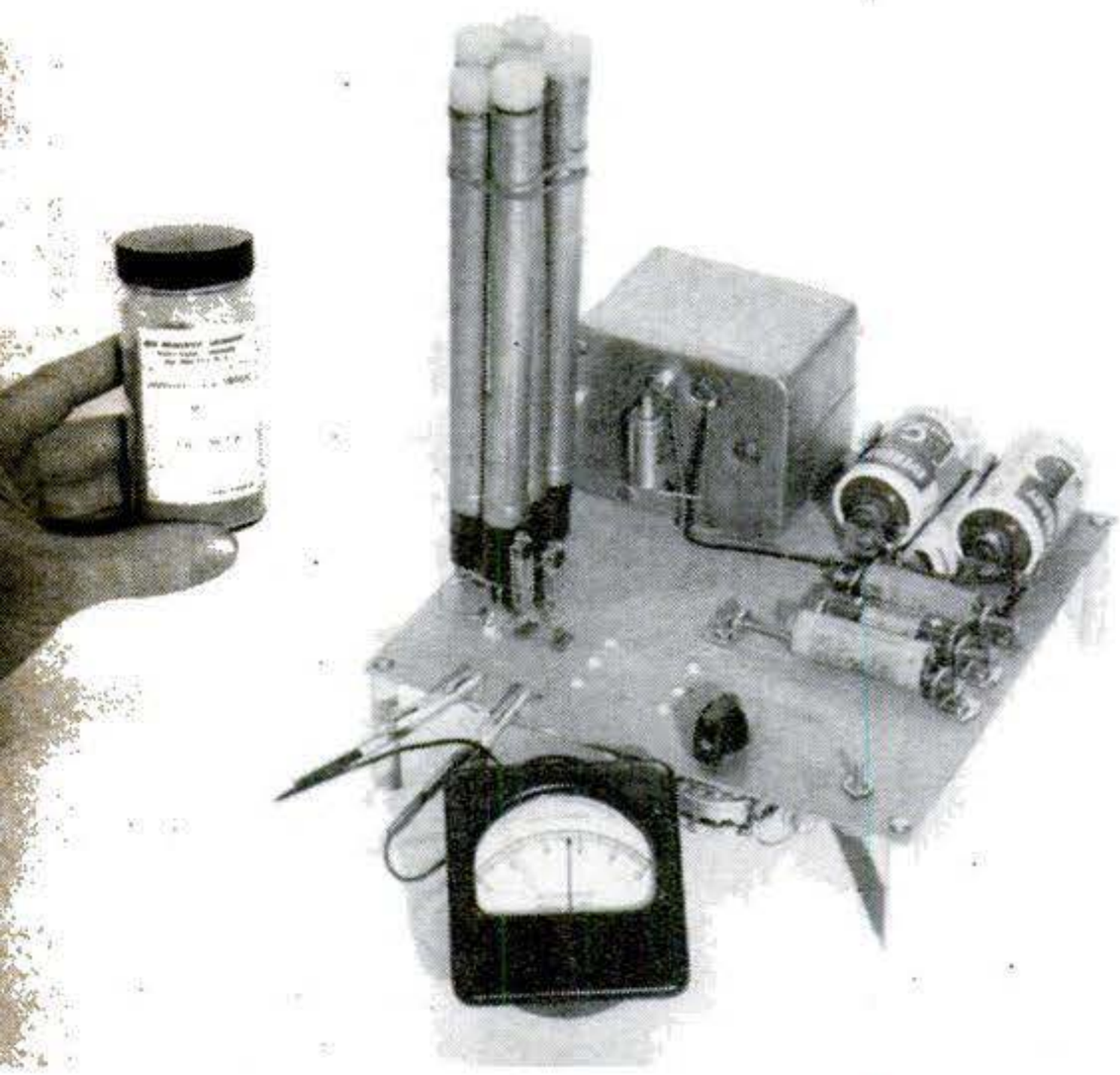
URANIUM is the magic word that has already put more than one amateur prospector into a high tax bracket. But to find radioactive treasure, you need a good radiation counter.

Really hot counters start with price tags of a few hundred dollars. Not having struck it rich yet, I wondered if I could build one myself. To find out, I went to the U.S. Atomic Energy Commission's Health and Safety Laboratory at the New York Operations Office.

Tube nets one percent. Any single Geiger tube, the experts told me, is only about 1% efficient—99% of the gamma rays go through it. To make up for this, Instruments Branch Chief Harris Le Vine has worked out a neat trick—using six Geiger tubes in parallel, which snare roughly 6% of the rays. I was assured the original breadboard rig could be made up as a field instrument.

Furthermore, the six tubes would give calibrated readings, enabling the user to assay his find. Properly built, I was told, the six-tube instrument would approach the sensitivity of at least the lower-priced ($300-$400) scintillation counters. However, you can build the outfit with only two Geiger tubes, and add more later.

Meter averages counts. Each gamma ray triggers a Geiger tube so that it momentarily conducts current, causing a click in earphones or a flicker on a



HERE'S THE AEC JOB. This original breadboard layout, built by the AEC's Health and Safety Laboratory, has six Geiger tubes tied into a bundle which was held with rubber bands. Since 99% of the gamma rays go right through any one tube, the inside tube still gets a crack at them. Although entirely different in layout, the self-contained field instrument shown at the right closely duplicates the performance of the laboratory setup.

THREE METER RANGES are provided, full-scale readings indicating .3, .1 or .03 milliroentgens per hour. Meter is always set to .2 ma. before testing a sample. In the .3 range, the .5% uranium sample reads about .28 ma. The 1%, 2% and 4% samples read .38, .55 and 1.0 ma. On the .1 range, readings are .37, .6, .35 and .52 ma., the last two with sample 3" from bottom of the case. Do not cut a hole in this; the gamma rays will readily pass through.

Copyrighted material

You Can Build

URANIUM FEVER is in the air. Your favorite camp spot, fishing grounds or summer homesite could be a modern El Dorado. This six-tube instrument not only spots radioactivity, but measures it.

meter. Trouble is, phone clicks are hard to count, while a meter may swing so fast over a "hot" find that you can't read it. If you "damp" the meter—slow down its response—single counts may be so far apart that you don't get a true reading.

But with several tubes ganged, counts follow each other so closely that a damped meter quickly reaches a true value. The needle averages up the counts. Therefore Mr. Le Vine calls this multiple-tube rig a Geiger Integrator.

Redesigned for field use, the unit I built cost about $180 for parts. A kit is now available for somewhat less.*

Batteries are cheap. All Geiger outfits require high voltage. In this instrument it is provided by two flashlight cells working a compact vibrator unit. The

**Federated Purchaser, 66 Dey St., NYC.*

Copyrighted material

cells should last about 100 hours; new ones cost 30 cents.

There are three other batteries, of the mercury type, which cost under $5 in all. Two have about the same life; the third (B4) will last up to 400 hours.

Meter versus phones. If you prefer, you can hook a pair of high-impedance phones across resistor R14 (it may help to short out the meter and disconnect the damping condenser C12).

But with a meter the instrument can be calibrated. The switch positions give three sensitivity ranges, calibrated in milliroentgens per hour. These .3, .1 and .03 mr/hr. values apply when the meter needle goes from its preset base of .2 ma. to full scale, or 1.0 ma.

Seal against moisture. Since high-voltage equipment is vulnerable to dampness, I built it into a seamless case with a well-fitting cover. Be sure to:

- Fit the cover with a rubber gasket. I used ⅛″ sponge rubber, held with heavy-duty rubber cement.
- Use a rubber washer under the head of every screw that goes through case or cover; mine are 1/32″ firm rubber.
- Put gaskets of the same material under both ends of the handle.
- Moistureproof the controls as shown.
- Seal the meter peep-hole with a sheet of acetate cemented to the underside of the cover. The meter-mount screws pass through the plastic and help hold it. Spacing washers enable the zero-set screw to clear the plastic.

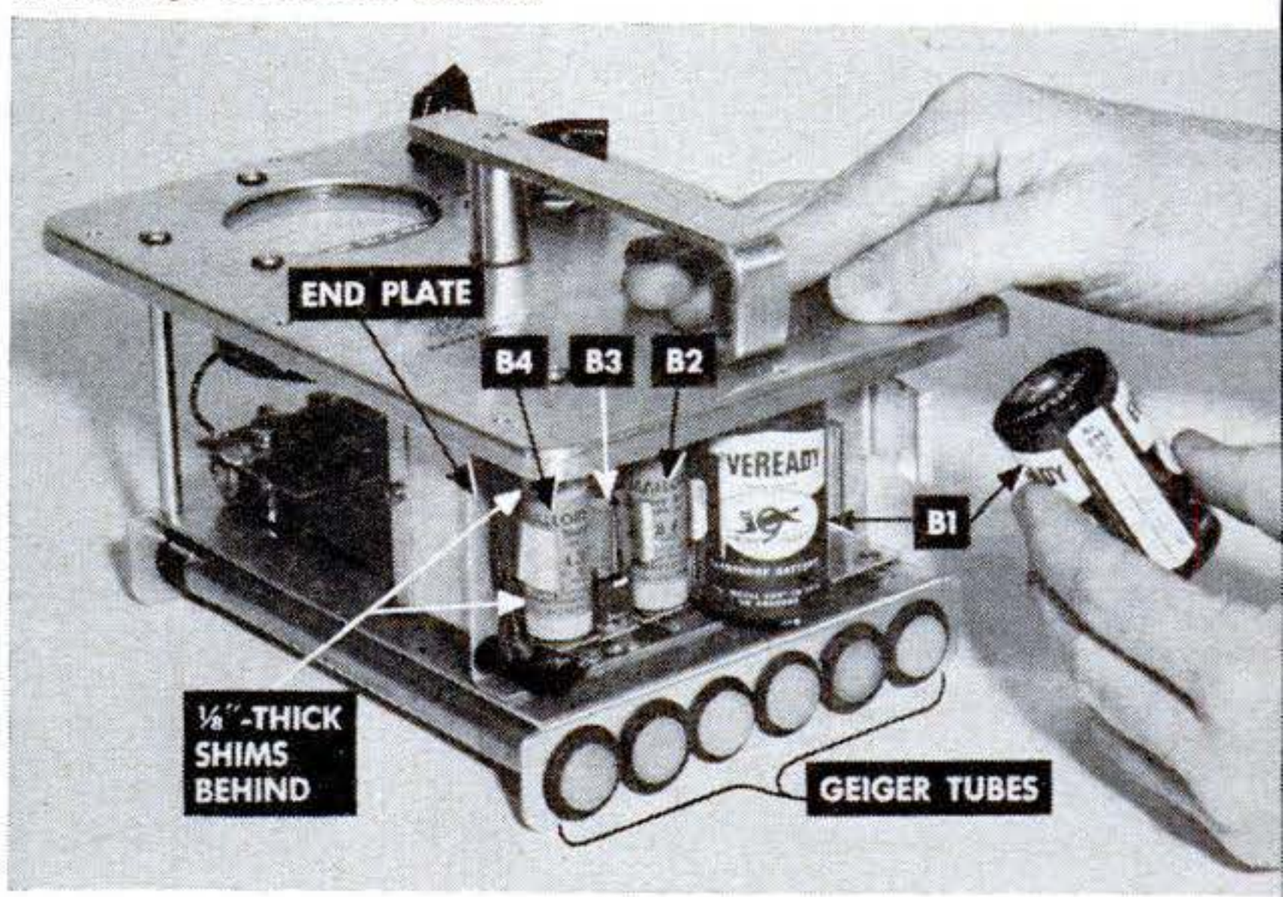
Shape parts from aluminum. Use 1/16″ sheet aluminum for the subpanel and end bracket. The former holds the Geiger tubes; the bracket is used to attach the subpanel to the cover at one end, and to mount the power-supply and battery cases.

The holes for the Geiger tubes and their sockets are best made with chassis punches; it is difficult to make clean holes of this size with an ordinary twist drill. Another method is to drill a circle of small holes around, chisel through between them, and file smooth.

At one end the Geiger tubes fit into three-prong sockets; at the other they lie in rubber grommets (you may have

All equipment is mounted on lid of seamless aluminum case

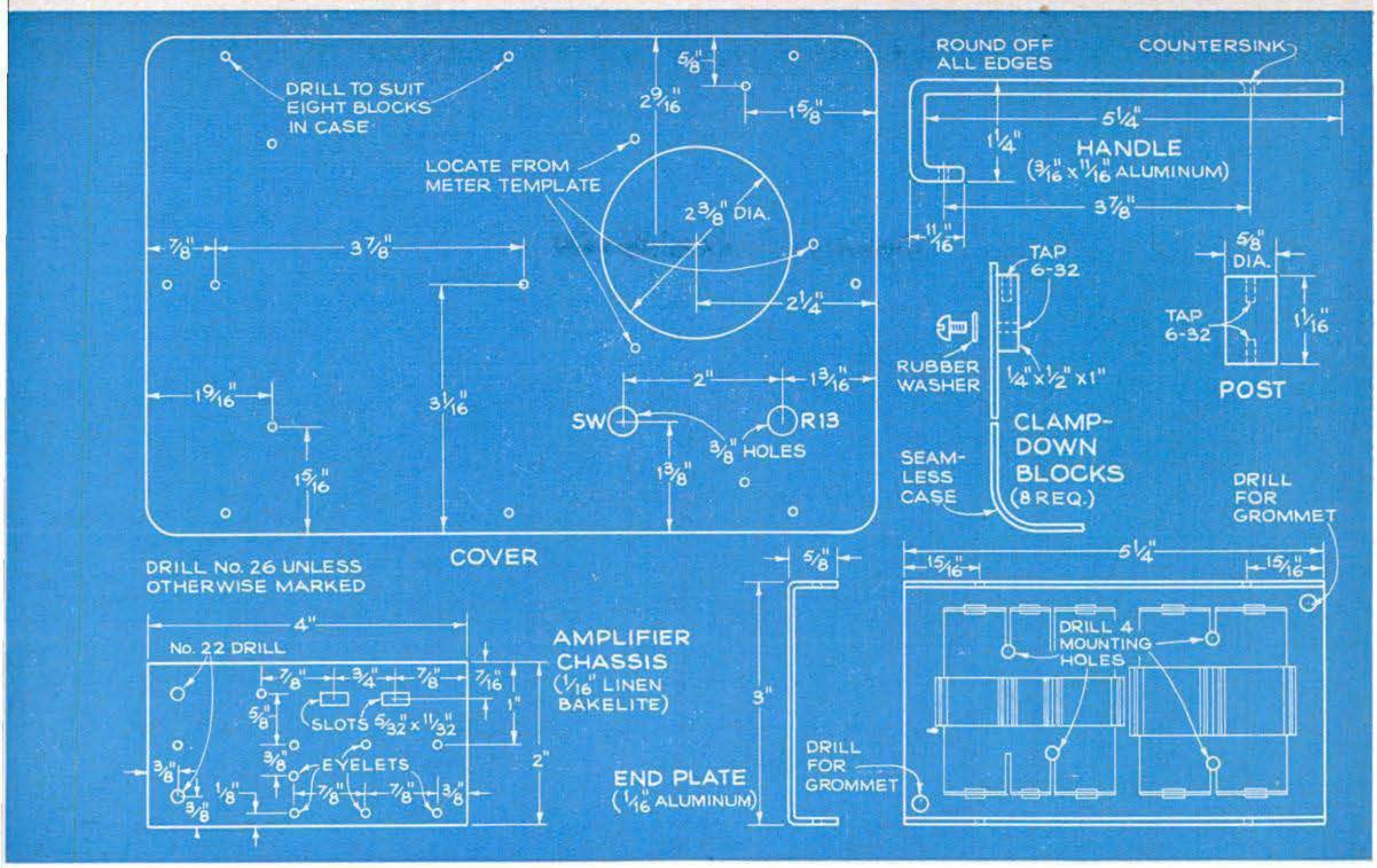
MOUNT THREADED BLOCKS in the case with screws and rubber washers. Drill bolt holes in the cover; then mark through them to spot the matching ones to be tapped in the blocks. Spot battery holders on end plate and drill for 2-56 bolts, which hold power case on the other side. Wire so that all batteries go in positive end up; check polarity of the mercury batteries by the markings on their cases.



PARTS LIST

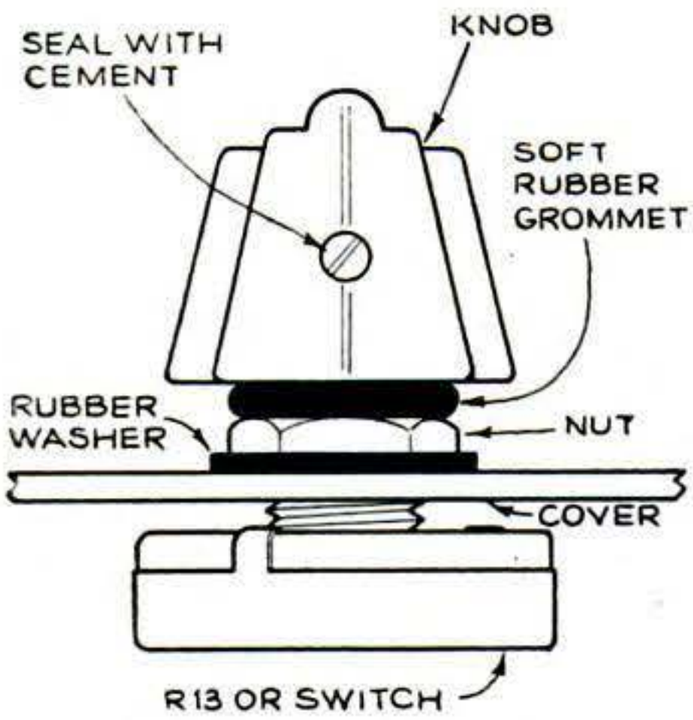
V1: Raytheon CK1036
V2: Raytheon CK1037
V3-V8: Anton 310 (Anton Electronics Lab., 1226 Flushing Ave., Brooklyn, N. Y.
V9, V10: Raytheon CK5886
4 Subminiature 5-prong sockets, rings (Cinch 2H5)
6 3-prong sockets, rings (Amphenol 78-S3S)
Vibratran E1017 (Edko Electronics, 202 Grand St., Brooklyn 11, N. Y.
SW1-SW4: 4-pole, 5-position rotary switch (Centralab)
O-1 ma. 3″ round meter (Triplett 321T)
C1, C12: 100-mfd., 6-v. electrolytic (C-D BBR)
C2: .001-mfd., 600-v. disk ceramic (CRL-DD102)
C3: .05-mfd., 1,600-v. (Mallory Plascap PT1615)
C4-C9: 47 mmfd. ceramic (CRL D6-470)
C10: .25 mfd., 200-v. paper Aerovox P-282
C11: .1 mfd. 200-v. paper Aerovox P-282
R1: 18-ohm ½-watt carbon
R2: 10-meg. ½-watt carbon
R3-R8: 47,000-ohm, ½-watt
R9: 3.9-meg. ½-watt, 5%
R10: 11-meg. ½-watt, 5%
R11: .5-meg. ½-watt, 5%
R12: 16-meg. ½-watt, 5%
R13: 3,000-ohm variable resistor (IRC Q11-112)
R14: 1,500-ohm, ½-watt
1 Battery case (Acme No. 12)
1 Battery case (Acme No. 15)
6 Rubber grommets, ⅝″ hole
2 Small bar knobs
4¼″-6″-9″ seamless aluminum case and cover (Zero Mfg. Co., Burbank, Calif.)
1¾″-2 9/16″-4¾″ seamless case and cover (Zero)
2 Teflon standoff terminals (Sealectro ST-1000)
3 Teflon feed-through terminals (Sealectro FT-1000)
B1: 2 "D" flashlight cells
B2, B4: 9.4-v. mercury batteries (Mallory 302437)
B3: 1.4-v. (Mallory RM502R)
Misc: aluminum or dural, 1/16″ sheet, ⅛-¾″ bar, ¼″ rod; panel decals; 6-32 screws; ¼″ o.d. bushings; lugs; wire; rubber for gaskets, washers; 3½″-sq. clear 1/32″ acetate; 1/16″ linen Bakelite
Counter calibration samples, $10 postpaid (AEC, Box 150, New Brunswick, N.J.)
Tracerlab R-20 radium button ($3.50; Tracerlab, Inc., 130 High St., Boston 10)

Copyrighted material

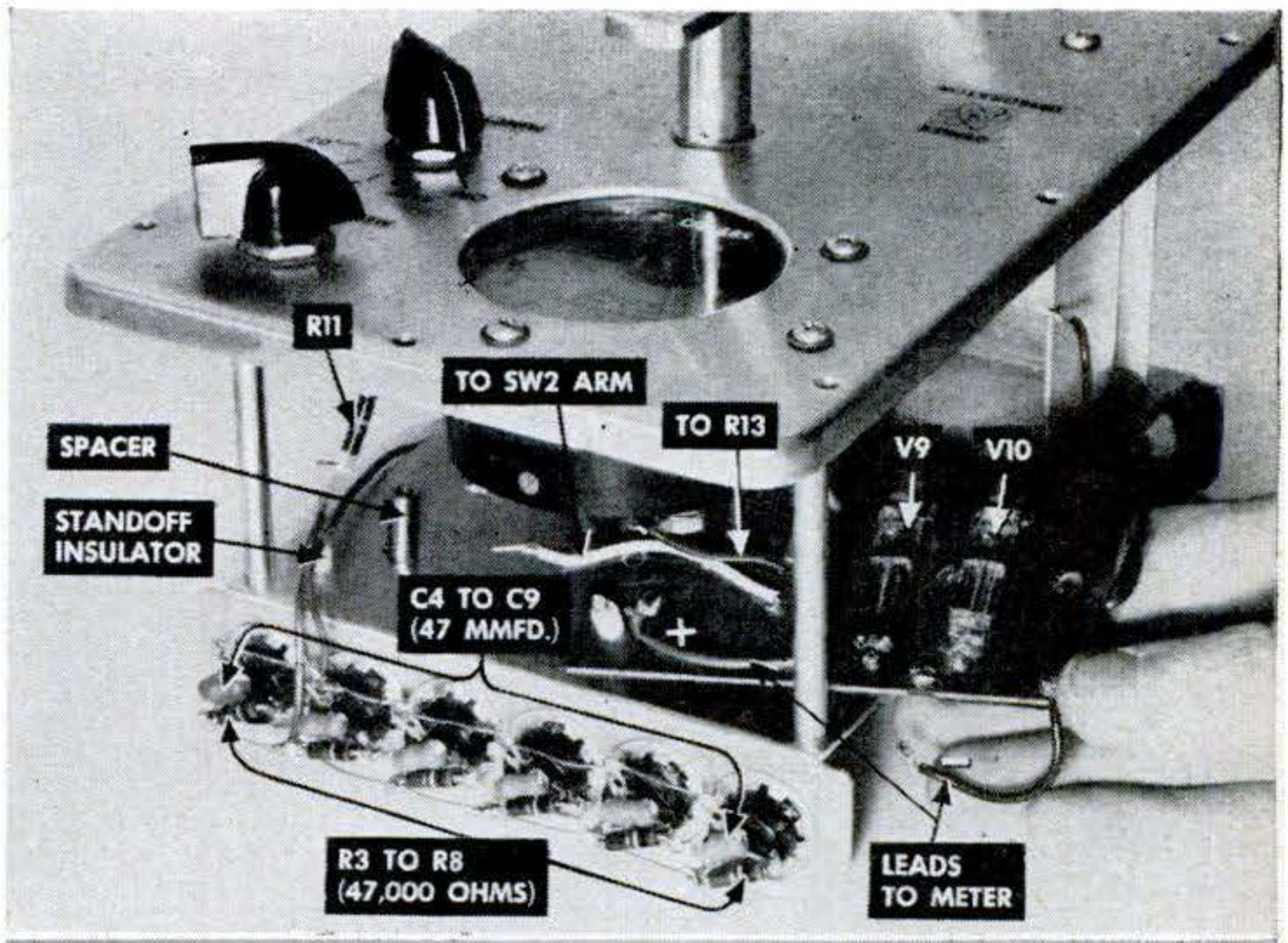


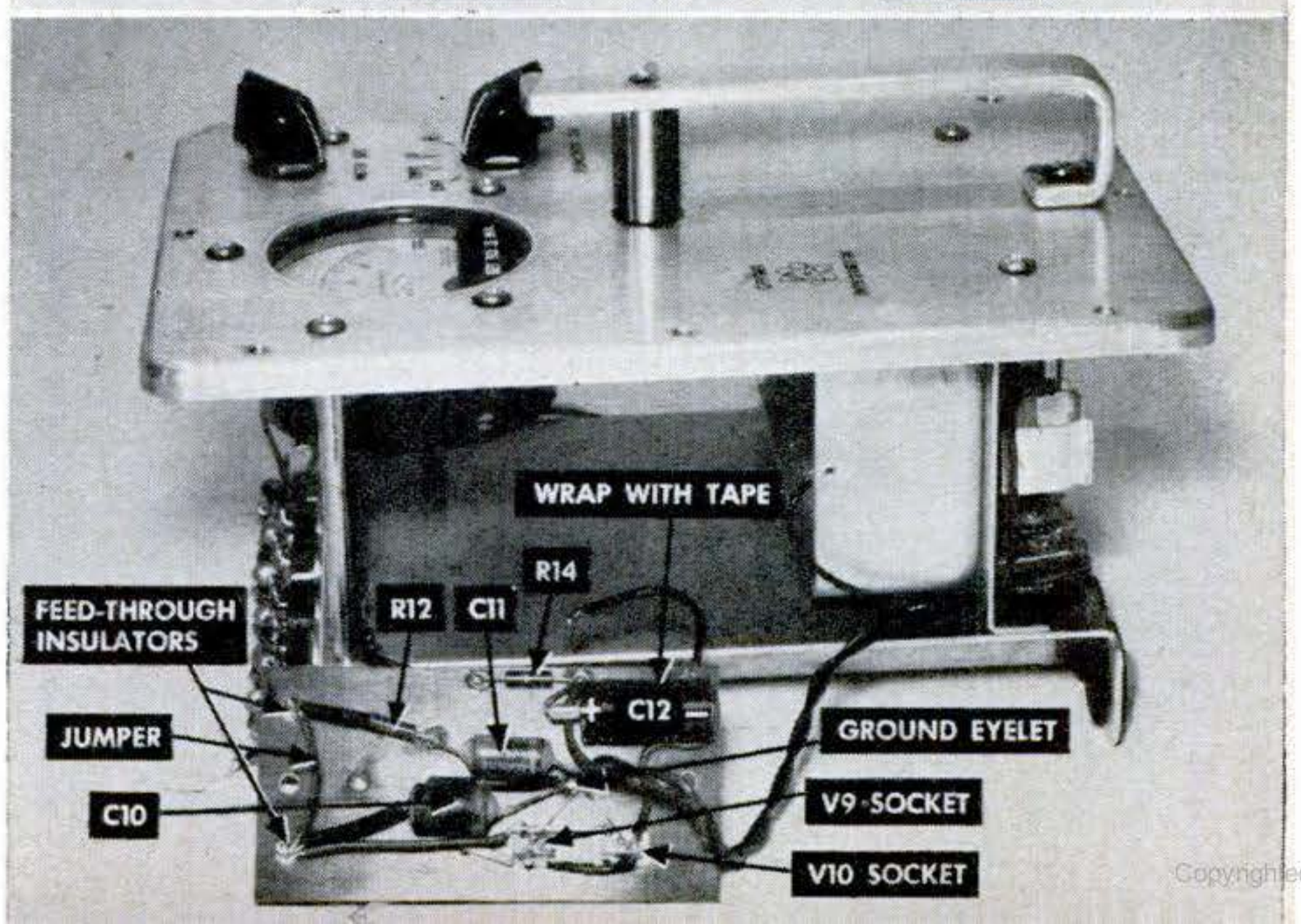
Two-tube amplifier to boost pulses is wired as separate unit

LAY OUT DIAL HOLE and holes for mounting the meter from the template provided with it. The big opening can be made with a fly cutter, hole saw or jeweler's saw. Compact amplifier is wired up on its own chassis and mounted on the subpanel by means of two bolts and ¼" o.d. bushings. Tubes are secured by an aluminum strap bracket (not shown) padded with sponge rubber beneath. This strap is held under the chassis mounting screw.



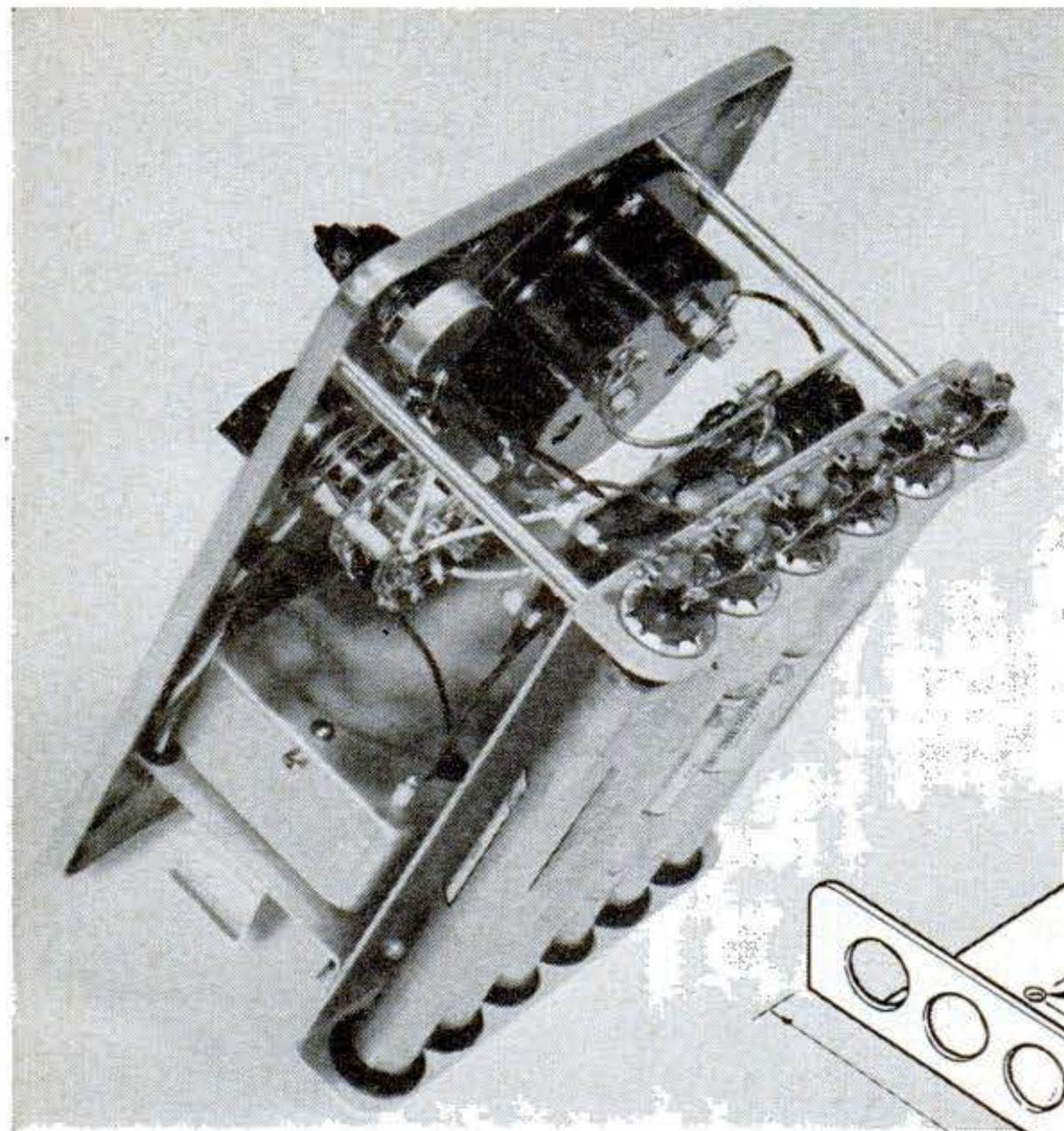
MOISTUREPROOF the controls by clamping a rubber washer under each hex nut and a soft rubber grommet below each knob. Lubricate with glycerin. Right, amplifier from beneath.



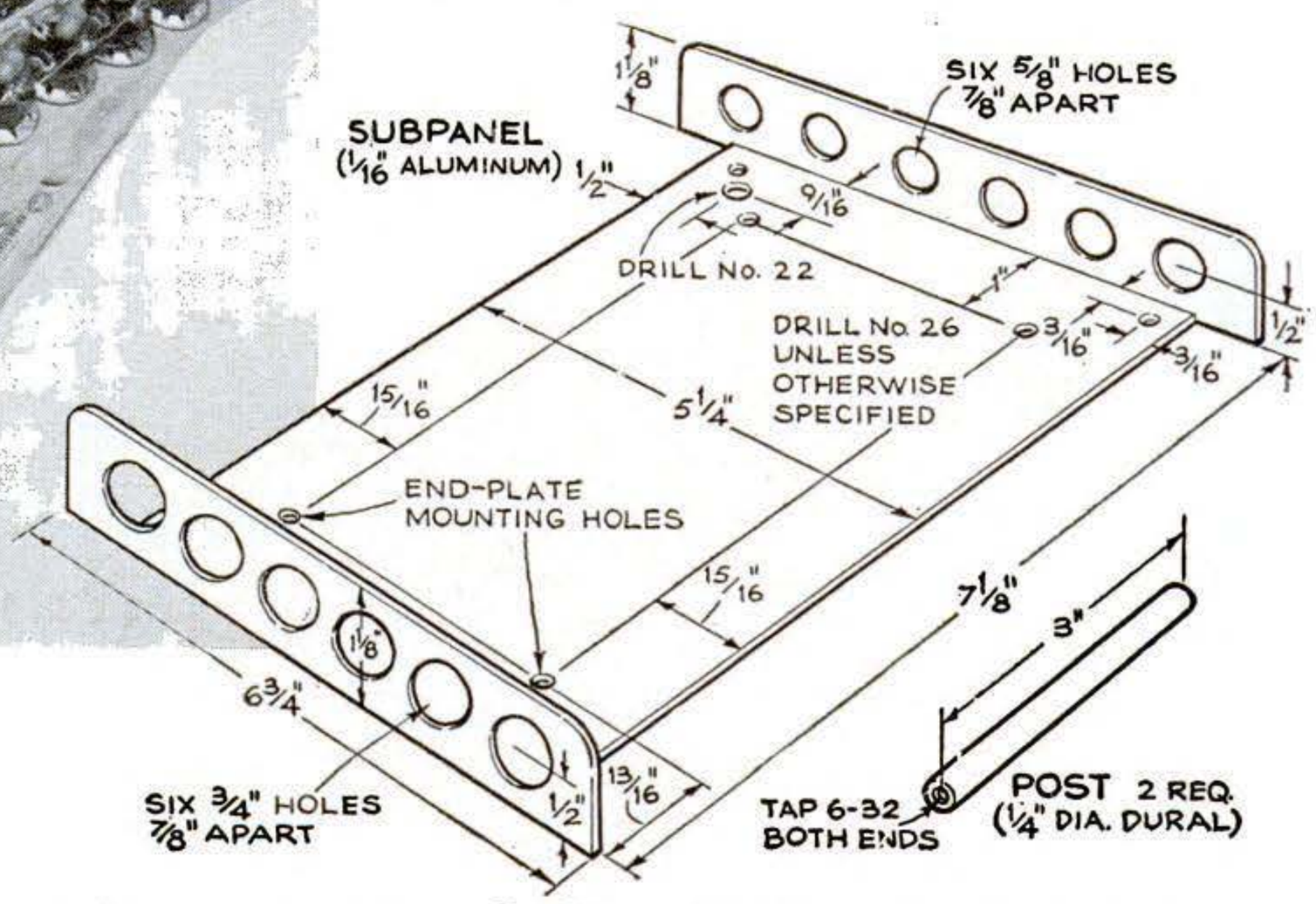


Copyrighted material

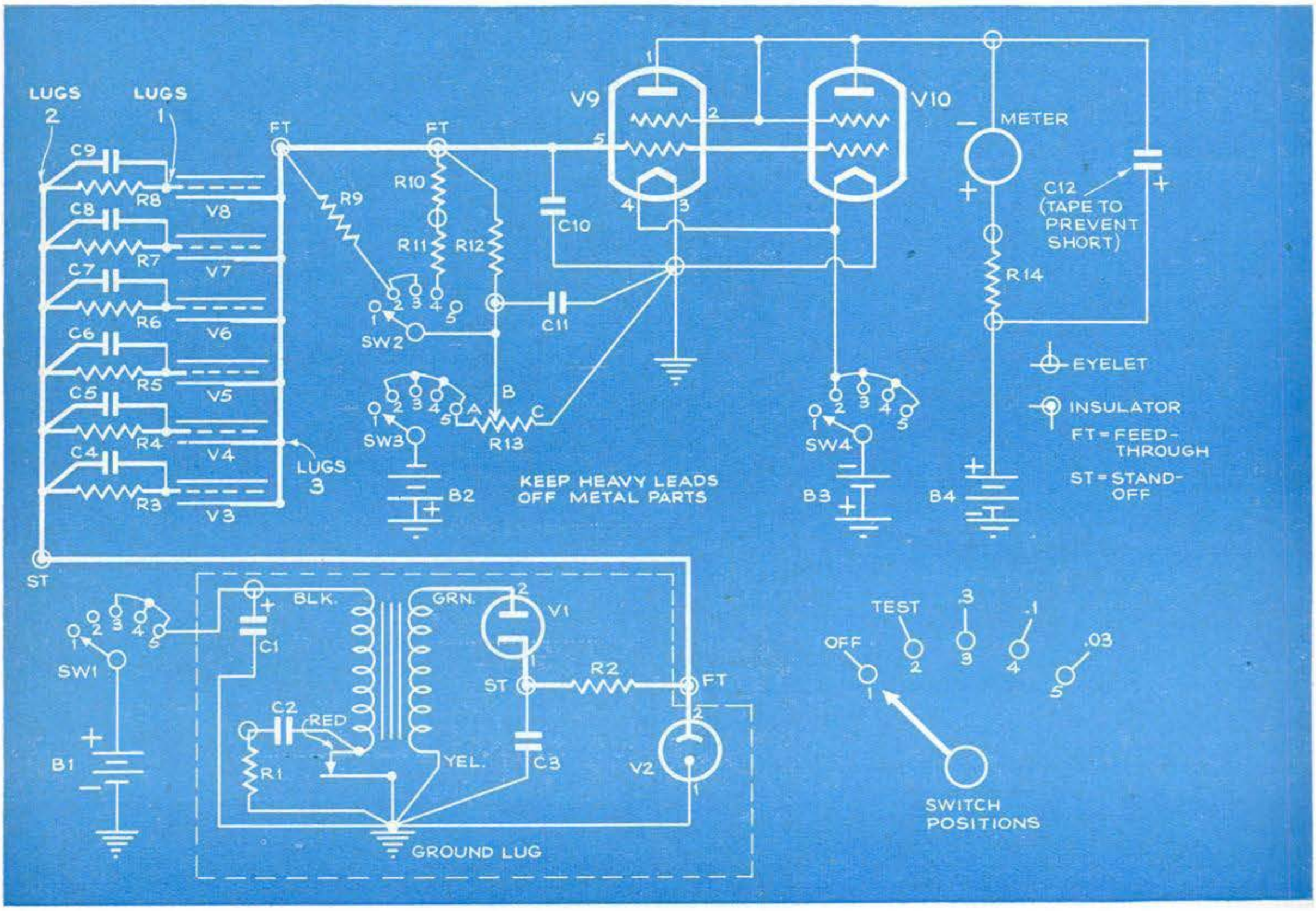
Geiger tubes fit into a subpanel fastened to the cover



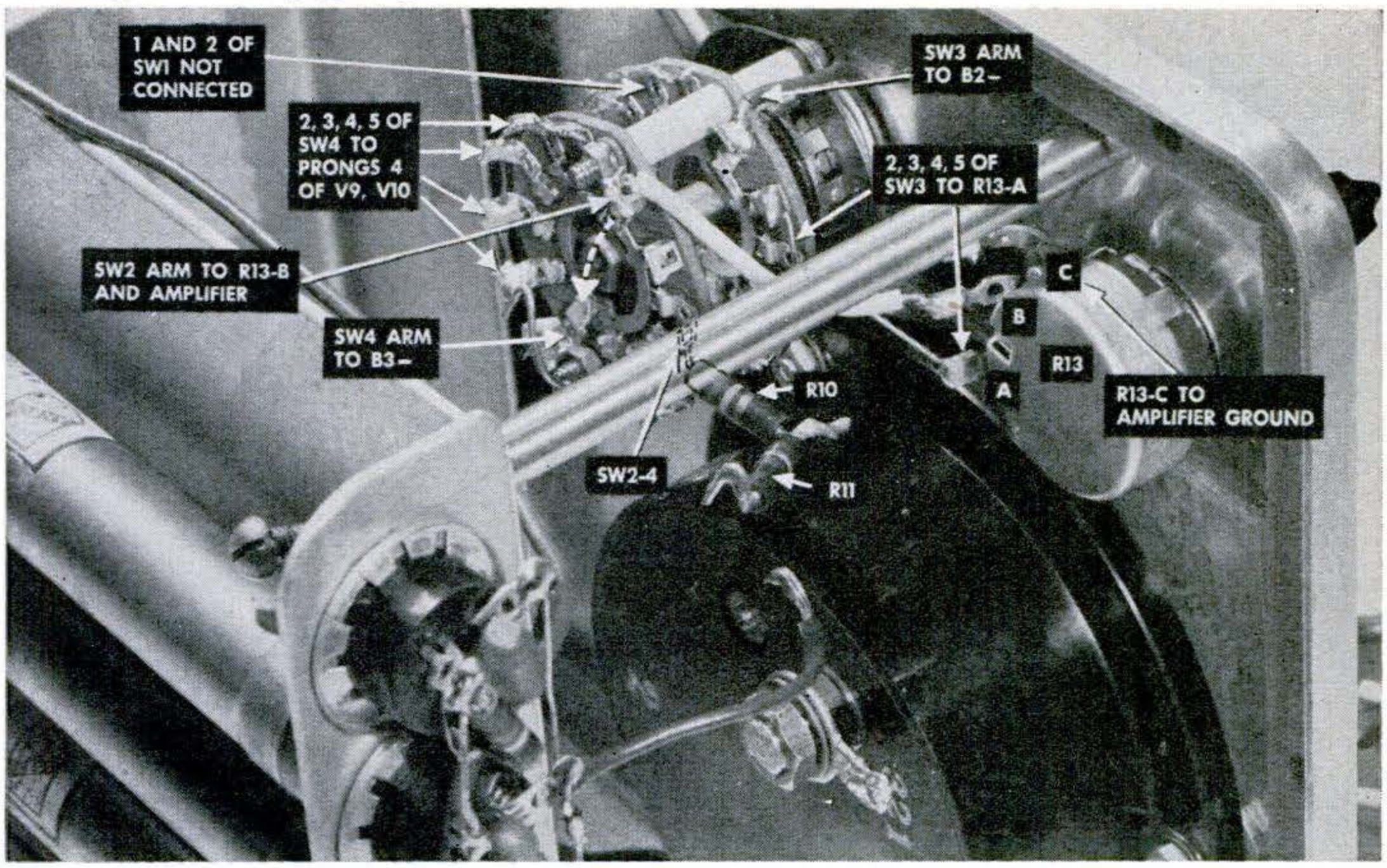
MOUNT GEIGER SOCKETS with spring rings. Bend all No. 3 lugs 90°, No. 1 lugs slightly less. No. 2 lugs have no tube connection but serve as tie points. Solder a 47-mmfd. condenser and a 47,000-ohm resistor across lugs 1 and 2 of each socket. Connect all lugs 2 with bare wire and run an insulated lead to the subpanel insulator. Join lugs 3 similarly and to feed-through insulator on amplifier.



Wiring is not too complex, but run all of the high-voltage leads

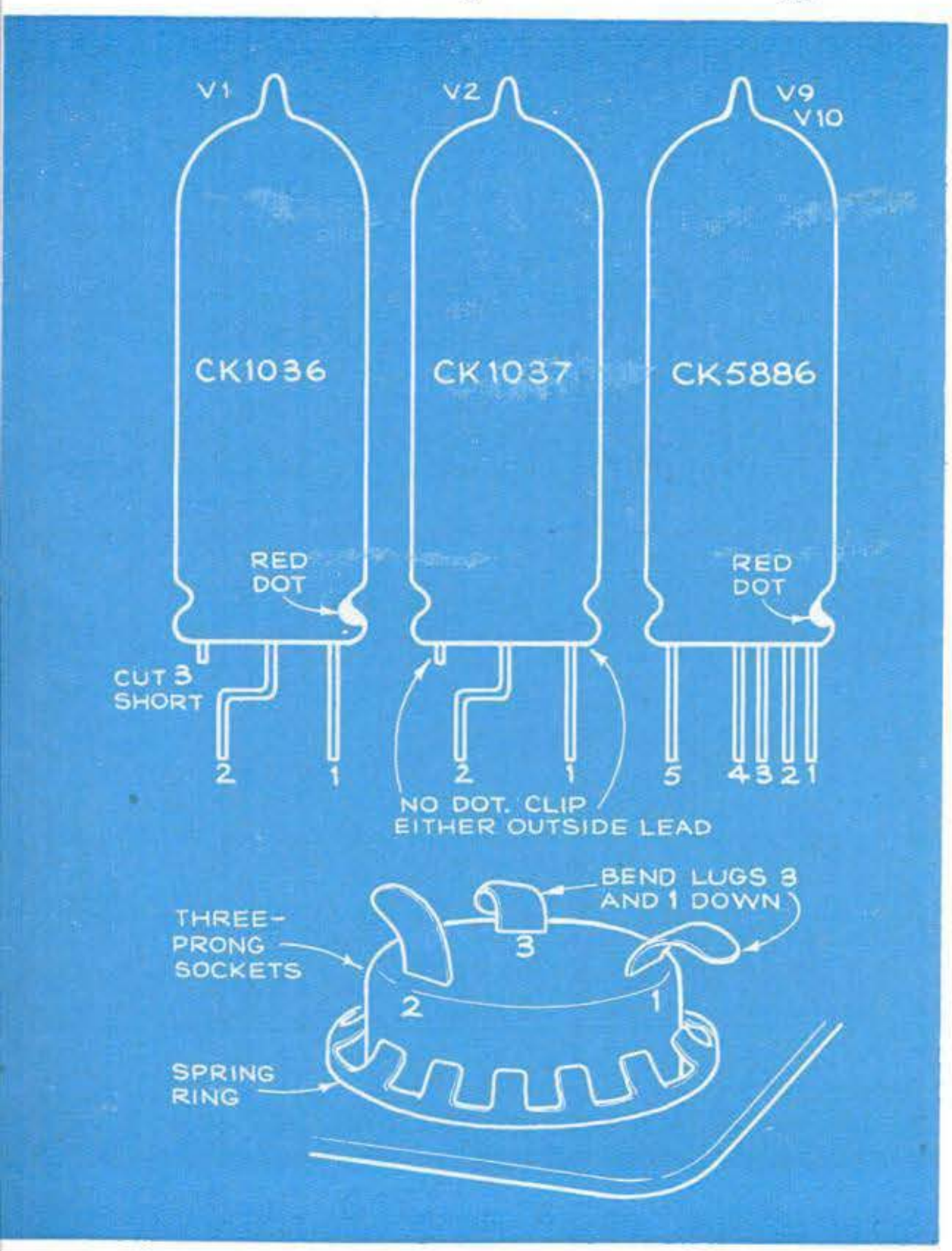


A single rotary gang switch handles four circuits



CLOSE-UP OF SWITCH shows some of its connections. Arm lugs (represented in diagram by arrows) are first ones clockwise, as seen from rear, of the studs that hold switch together. Lugs 5, 4, 3, 2 and 1 follow clockwise in that order. Geiger-tube socket can be seen at left.

with care to prevent leakage



to enlarge the hole in these). The grommets should touch only the plastic tube ends, not the shells, which are at high voltage. Bend the flanged subpanel ends exactly 7⅛″ apart inside; if it's shorter, the shells may touch the grommets.

Cut the clips of the small battery case shorter and reshape them to grip the mercury batteries. To center these on the contacts, mount ⅛″ composition shims behind with 2-56 case nuts.

High voltage in a box. The power supply is built onto the cover of its case, which has a piece of sponge rubber cemented inside it to press against the tubes.

The vibrator-transformer is held with three long screws. Two small angle brackets attached to the transformer hold one end of the Bakelite chassis; a ¾″-long bushing supports the other.

Two chassis eyelets provide soldering points to which several components can be tied. Attach one end of C3 to the standoff insulator, which will take the strain of this off the socket lug.

The Teflon insulators are pressed in-

Copyrighted material

to No. 22 holes. All leads in heavy lines on the diagram are at high potential and should be kept away from chassis metal. A lug on the cover provides a ground connection; do not depend on metal contact to provide a common ground, but run ground wires between units.

Only two leads of V1 and V2 are used. Clip the third short as in the drawing and pull out all but the two end socket lugs. Be sure to cement the sponge-rubber pad where it will touch the glass, not the tube leads, to avoid leakage.

Using fewer tubes. Even with only two Geiger tubes, you will have an instrument as good as many commercial ones. To retain the same calibration, resistors R9 to R12 should be three times the listed value. Full-scale readings will then still indicate .3, .1 and .03 mr/hr., but of course the instrument will not be as sensitive.

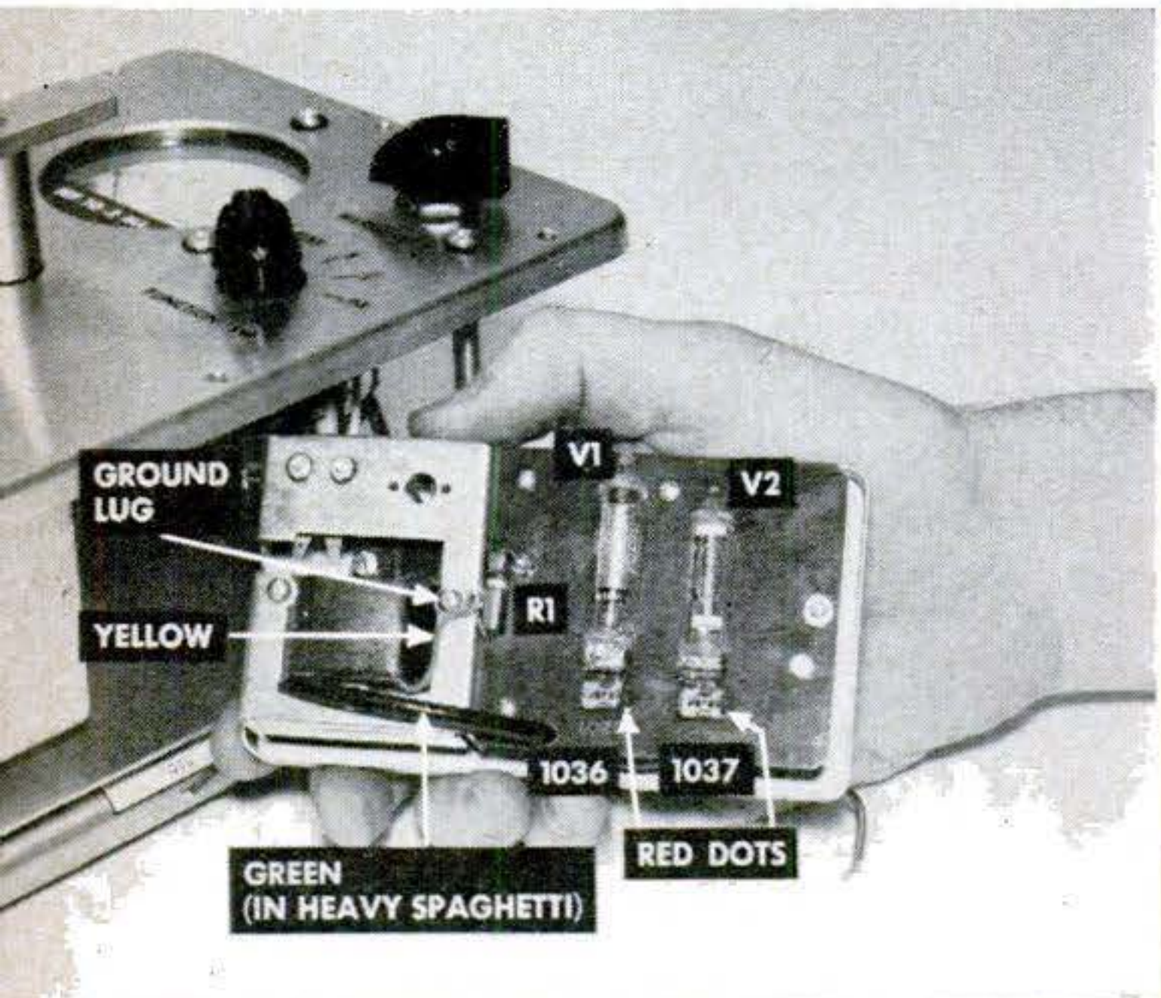
Caution—hot juice! The little power pack really puts out high voltage, so before touching the Geiger tubes or other "hot" parts, always discharge the filter condenser by shorting the power-case insulator to the chassis.

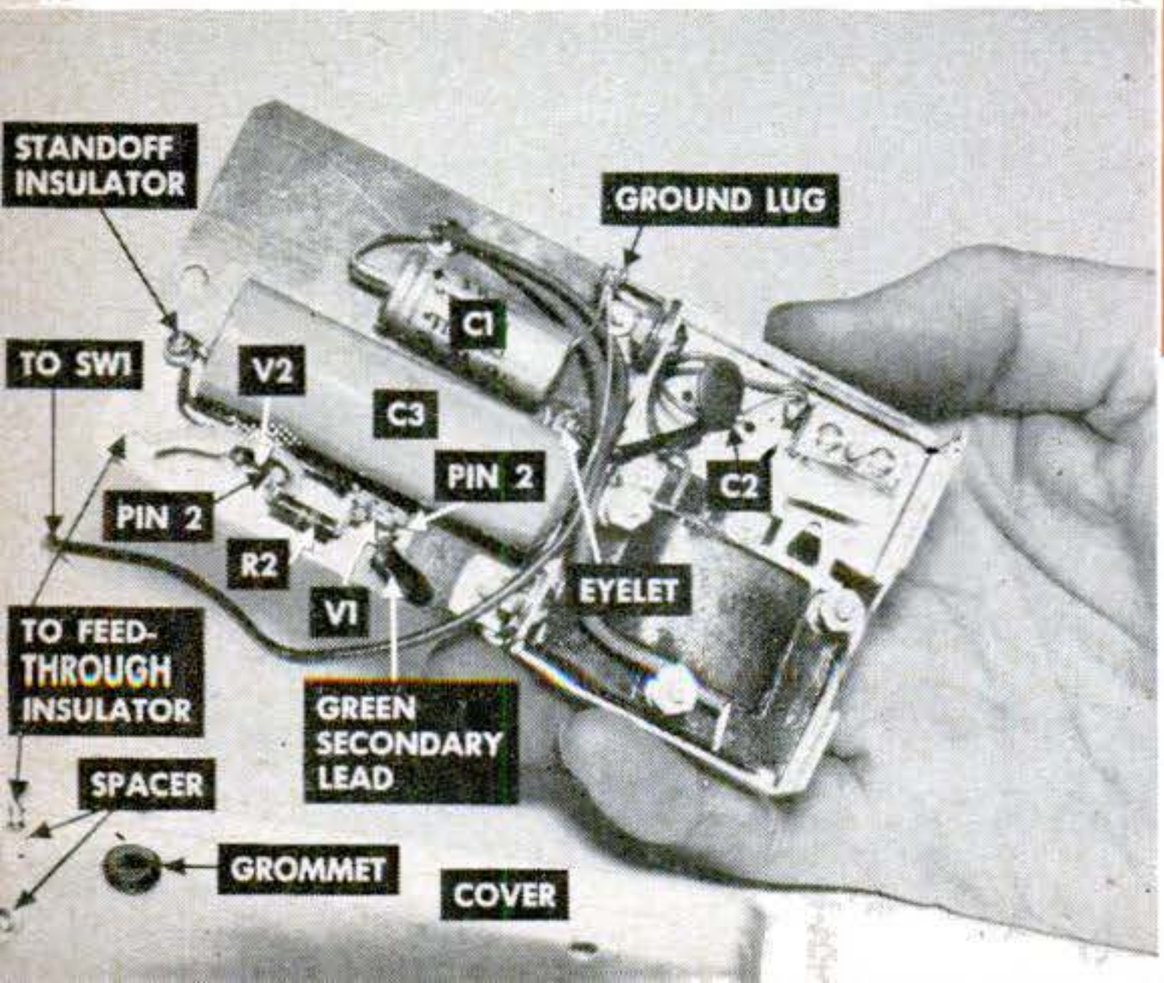
Testing the outfit. Install batteries B3, B2 and B4, switch to "Test," and see if you can make the meter read .2 ma. by turning R13. (It will jump momentarily as you switch on, but should soon drop back.)

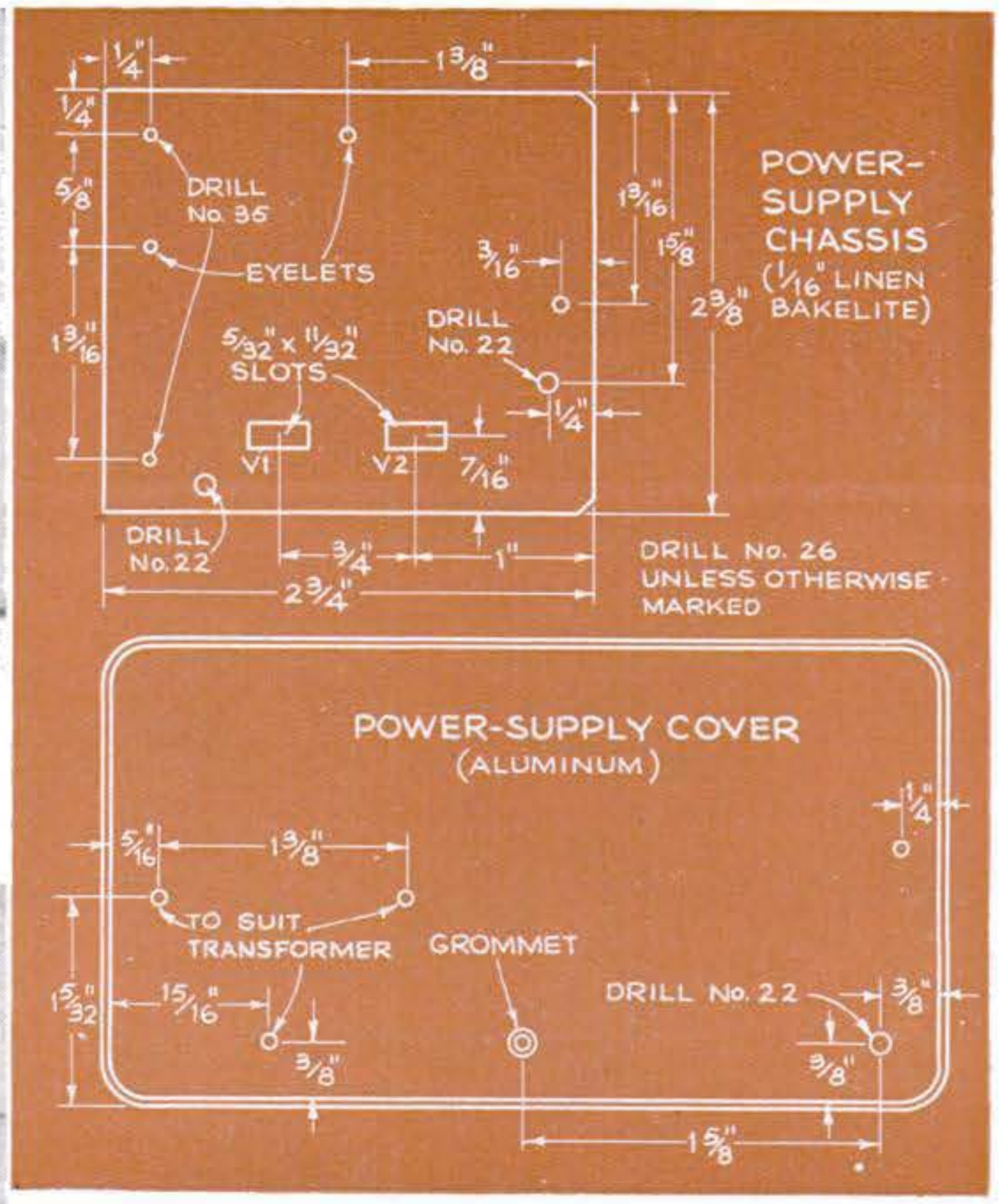
Now insert the B1 cells and switch to .3 setting. The meter should still read about .2 ma. If it goes higher (with no radioactivity near) there may be leakage at the Geiger sockets. Check by removing all Geiger tubes; on all three range settings you should get about the same .2 ma. reading as at "Test."

With tubes in, a slightly higher reading is normal on the two upper ranges, due to "background count" from cosmic rays and other sources. The AEC set of four bottles of uranium ore is valuable for checking. Although not calibrated, the radioactive button listed is handy for field testing. END

Midget vibrator, two tiny tubes supply high-voltage direct current



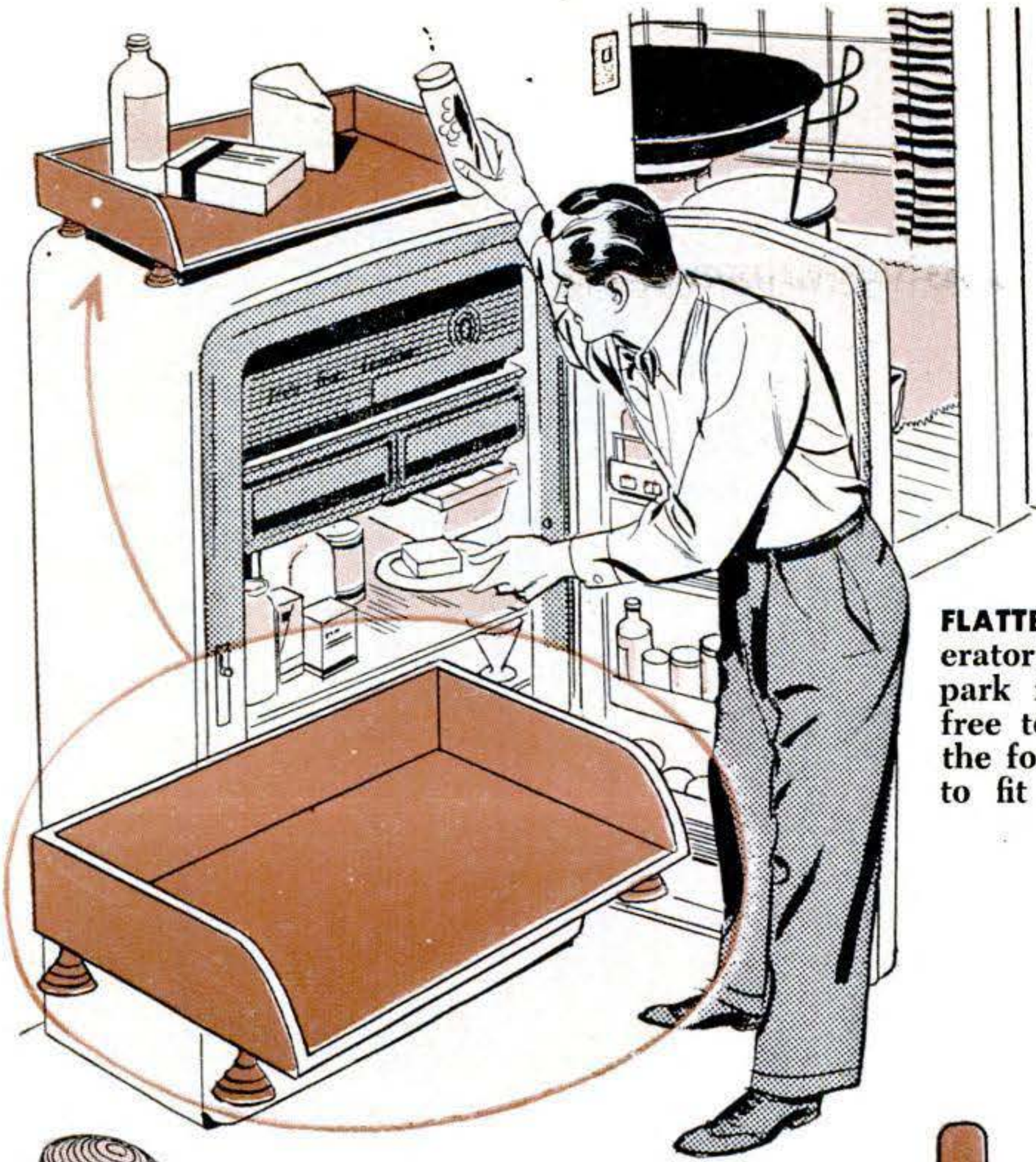




HIGH-VOLTAGE SUPPLY has two tubes, mounted in miniature sockets. Sponge rubber in case bears against glass-tube envelopes. One end of C2 goes to the "hot" vibrator contact (with red wire on it). Yellow lead and one end of R1 go to ground lug under transformer-core bolt.

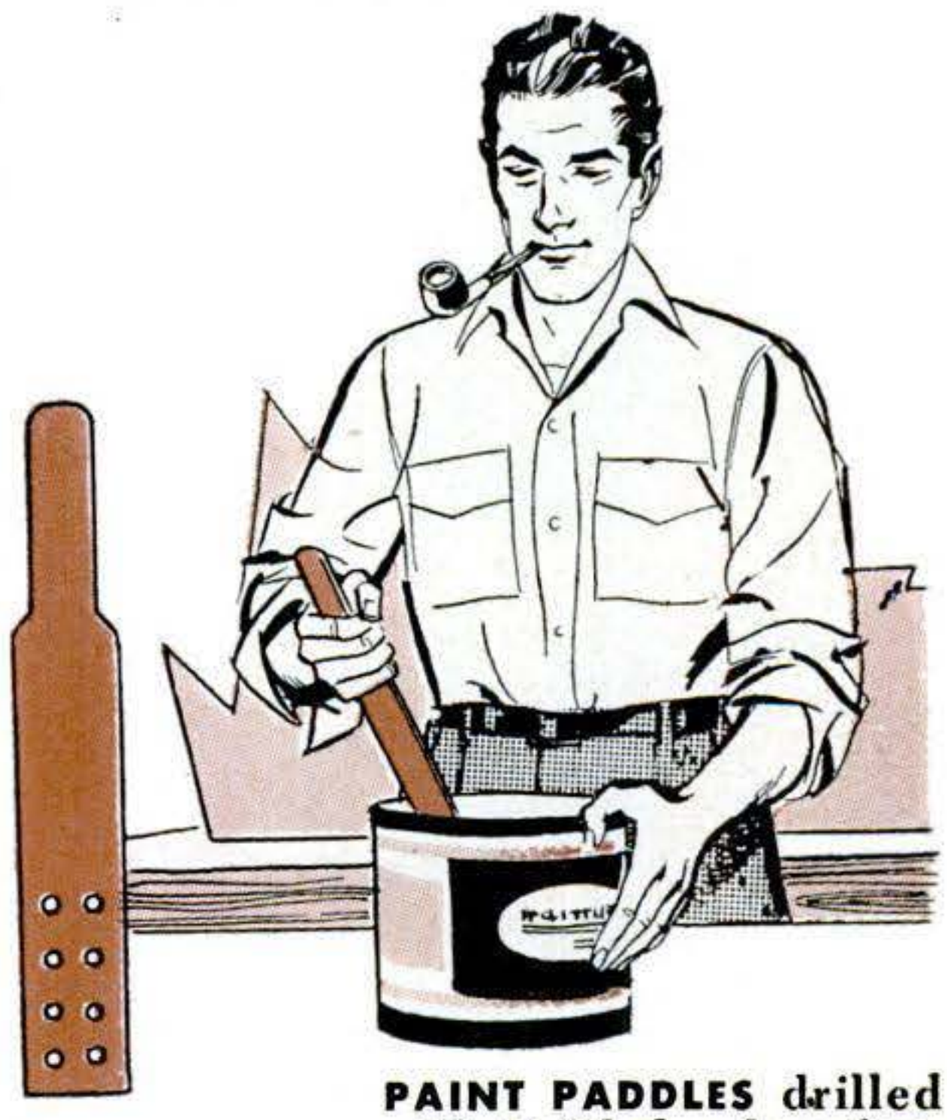
Copyrighted material

KEEPING THE *Home* SHIPSHAPE

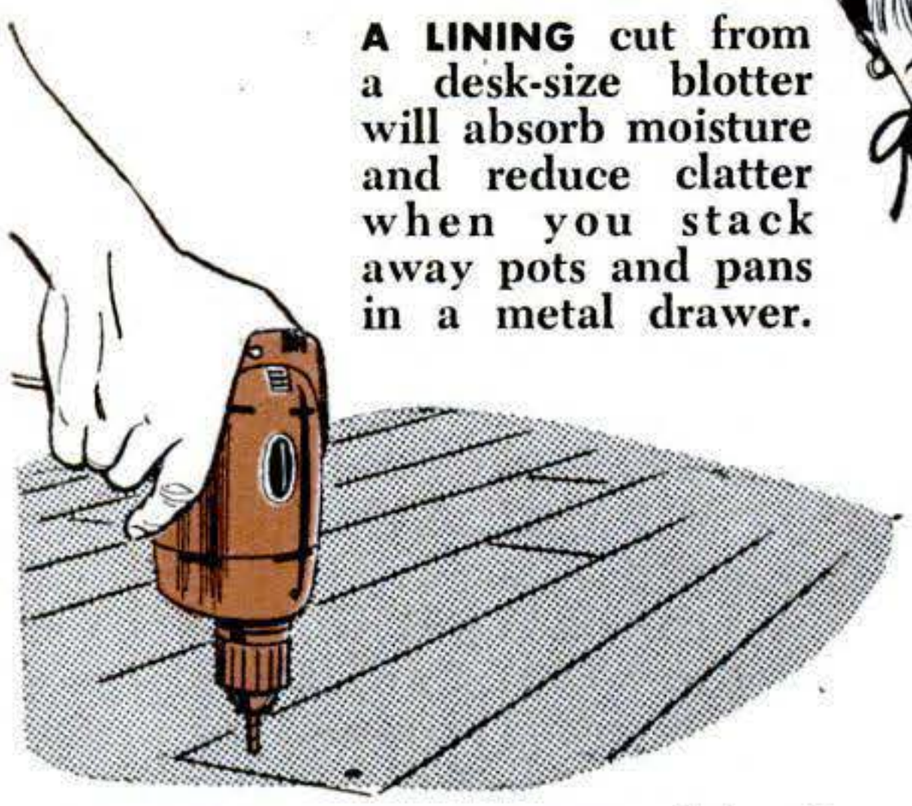


FLATTEN THE TOP of a refrigerator with a tray so you can park food and have a hand free to open the door. Place the four screw-in suction cups to fit curvature of the box.

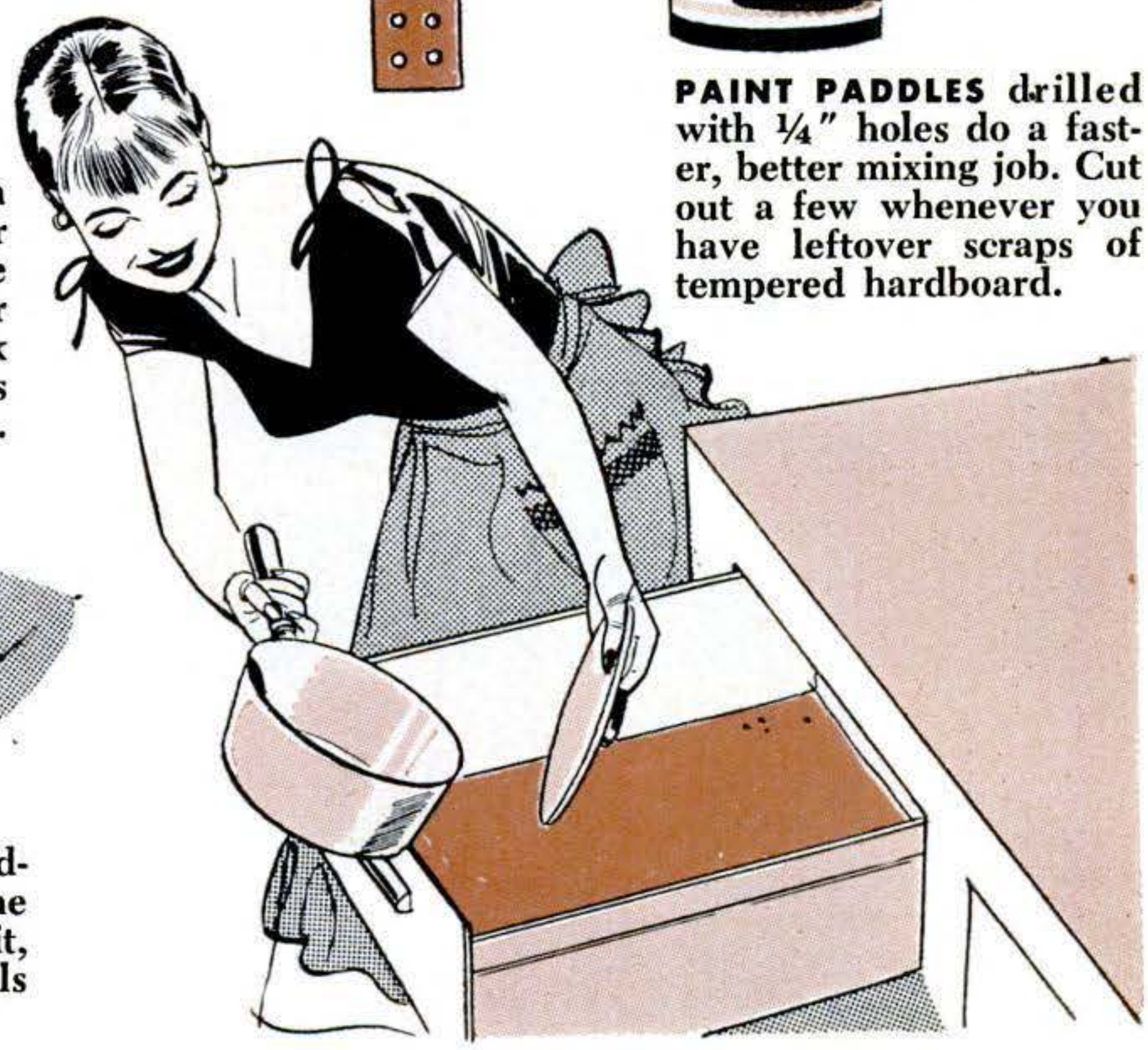
AN OIL CAN makes a handy dispenser for spot-squirting weed killer into the roots of dandelions without getting any of the chemical on nearby grass.



PAINT PADDLES drilled with ¼" holes do a faster, better mixing job. Cut out a few whenever you have leftover scraps of tempered hardboard.



A LINING cut from a desk-size blotter will absorb moisture and reduce clatter when you stack away pots and pans in a metal drawer.



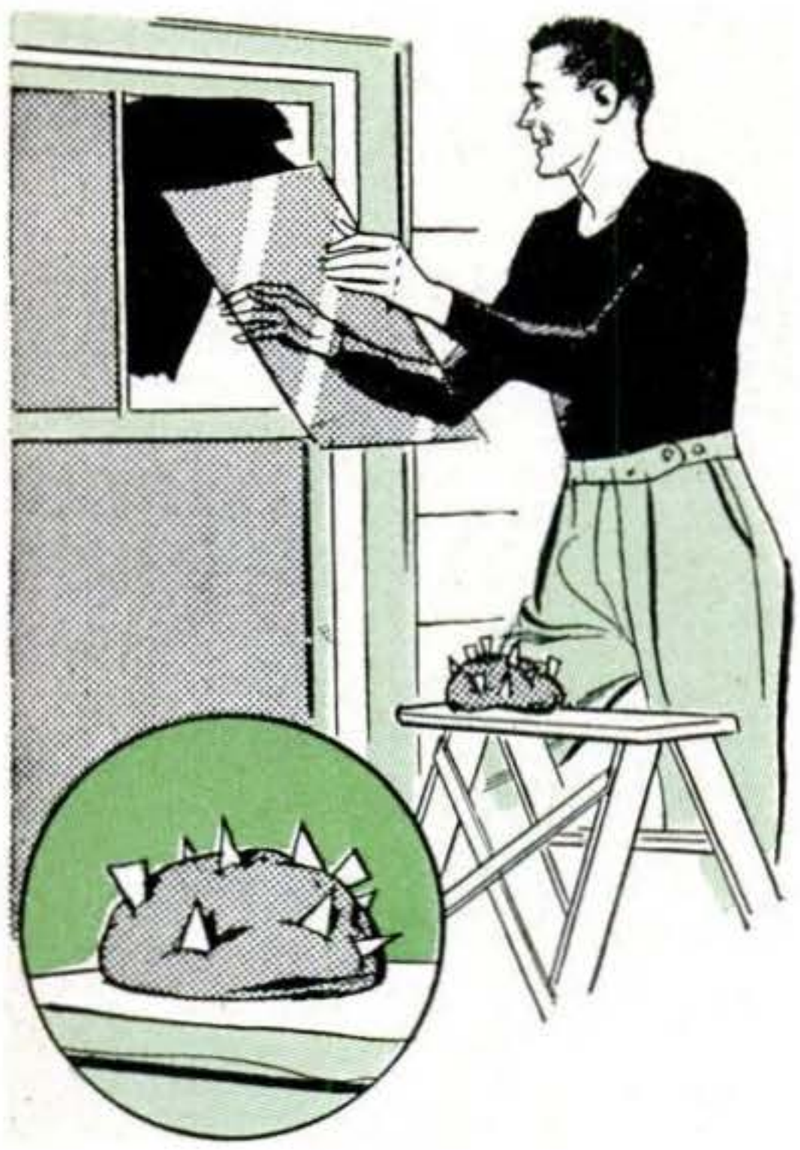
WHEN TIGHTENING FLOORS of hardwood, drill holes before driving in the nails. Boards will be less apt to split, especially when you are driving nails near the ends.

Please turn the page for more home tips

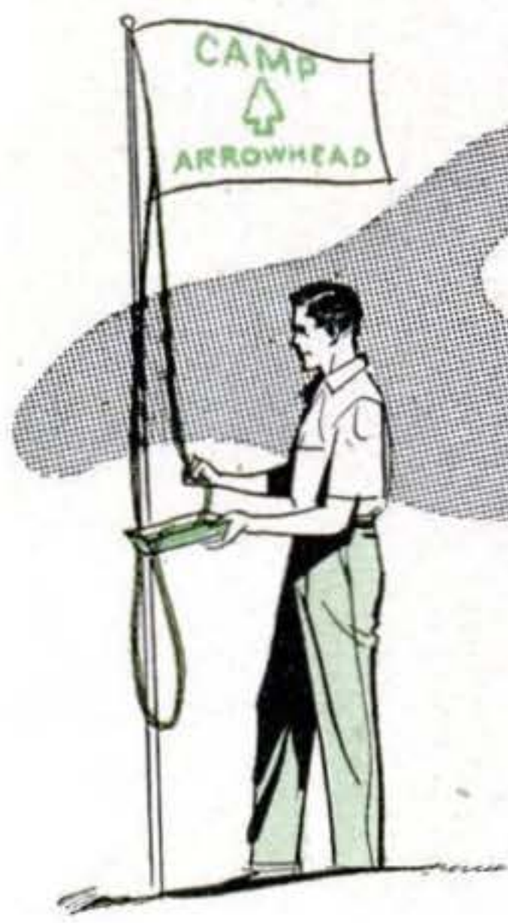
Copyrighted material

More Home Tips

A BLOB OF PUTTY stuck to ladder or window sill will hold glazier's points, making them easy to grasp, hard to spill.

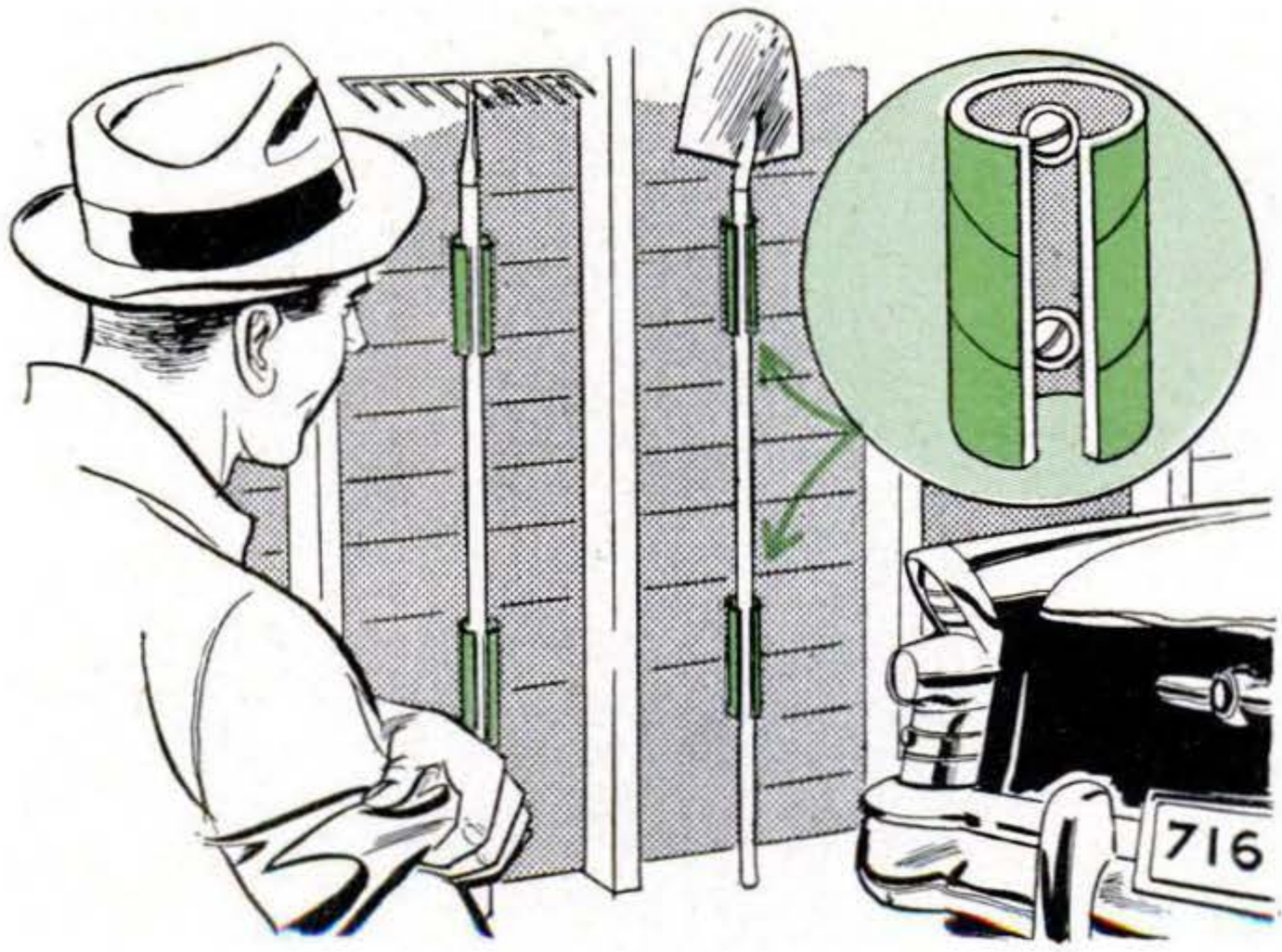


STRING A LINE between two picture hooks and a youngster can hang up a raft of drawings without marring the walls. Snap clothespins hang the art work on the line.



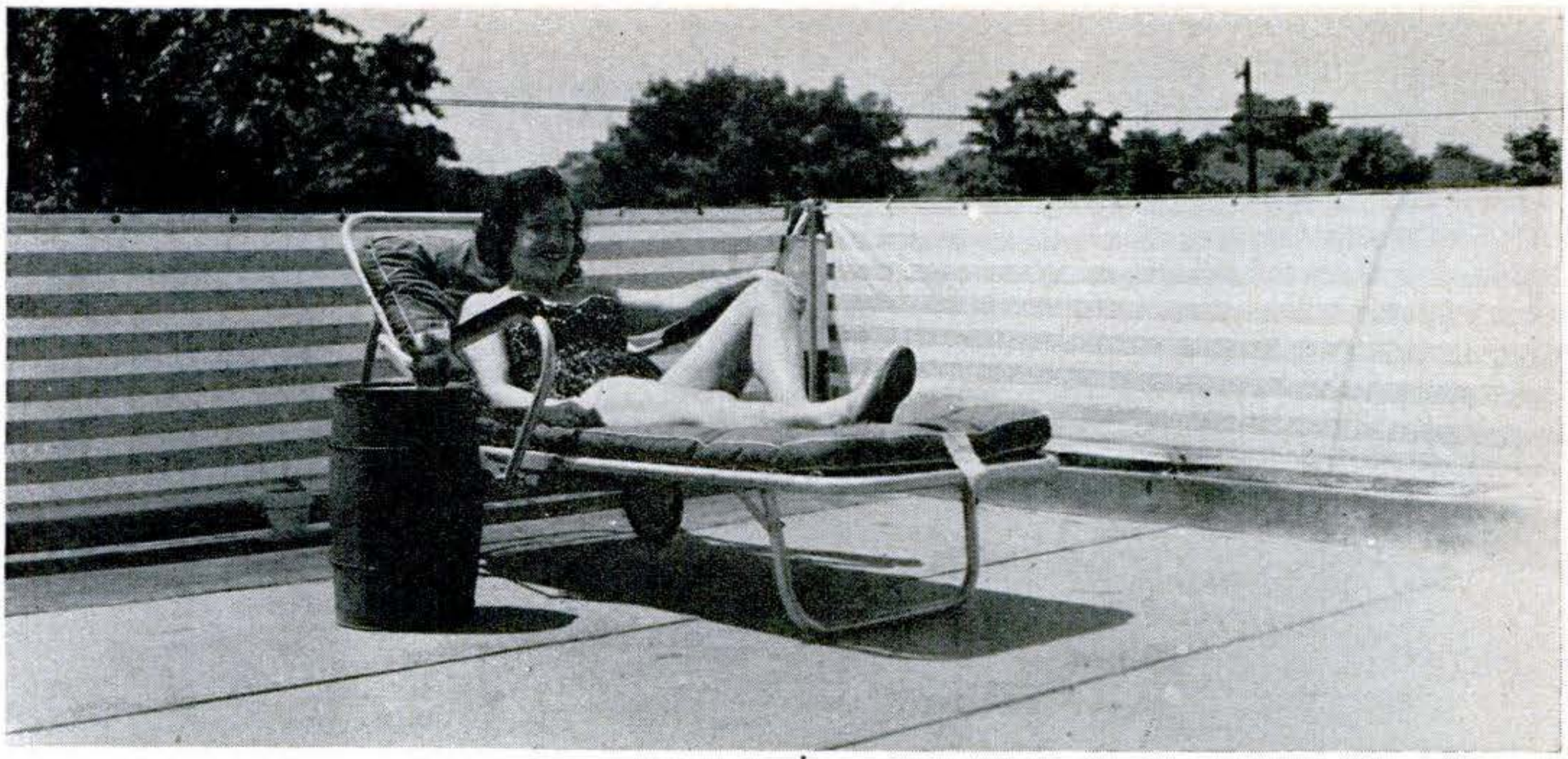
A FLAGPOLE ROPE will last through a good many more ups and downs if you wipe it well with a rag soaked with linseed oil before stringing it. If rope's already on the pole, draw it through oil poured into a pan.

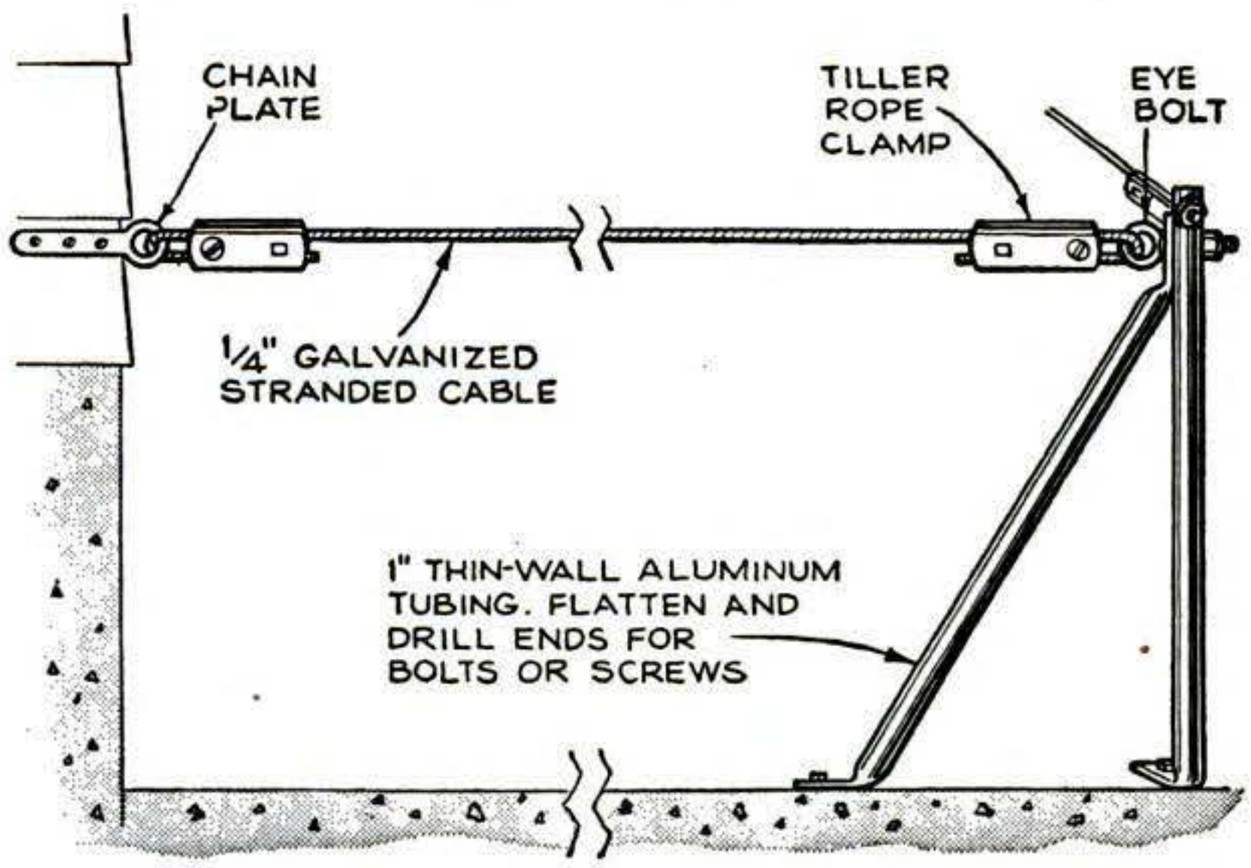
HANG UP THE SHOVEL AND THE HOE in grips cut from an old car radiator hose. Slit 3" pieces and fix them to garage or basement wall with screws and washers.



PAINTING TRIM on a brick house? Keep a broken brick handy. When rubbed over spatters on masonry, the brick dust picks up paint. A chunk of concrete will do the same job on spattered concrete.

Copyrighted material



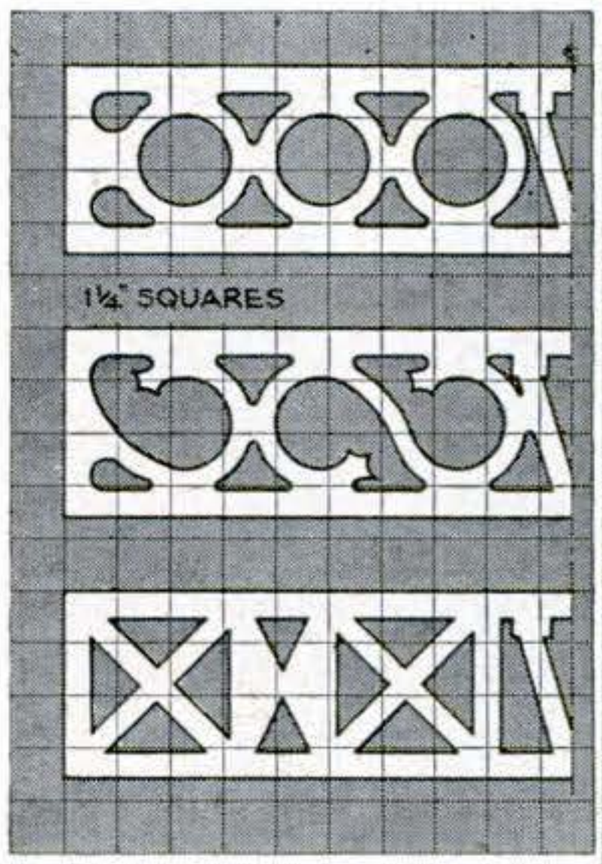


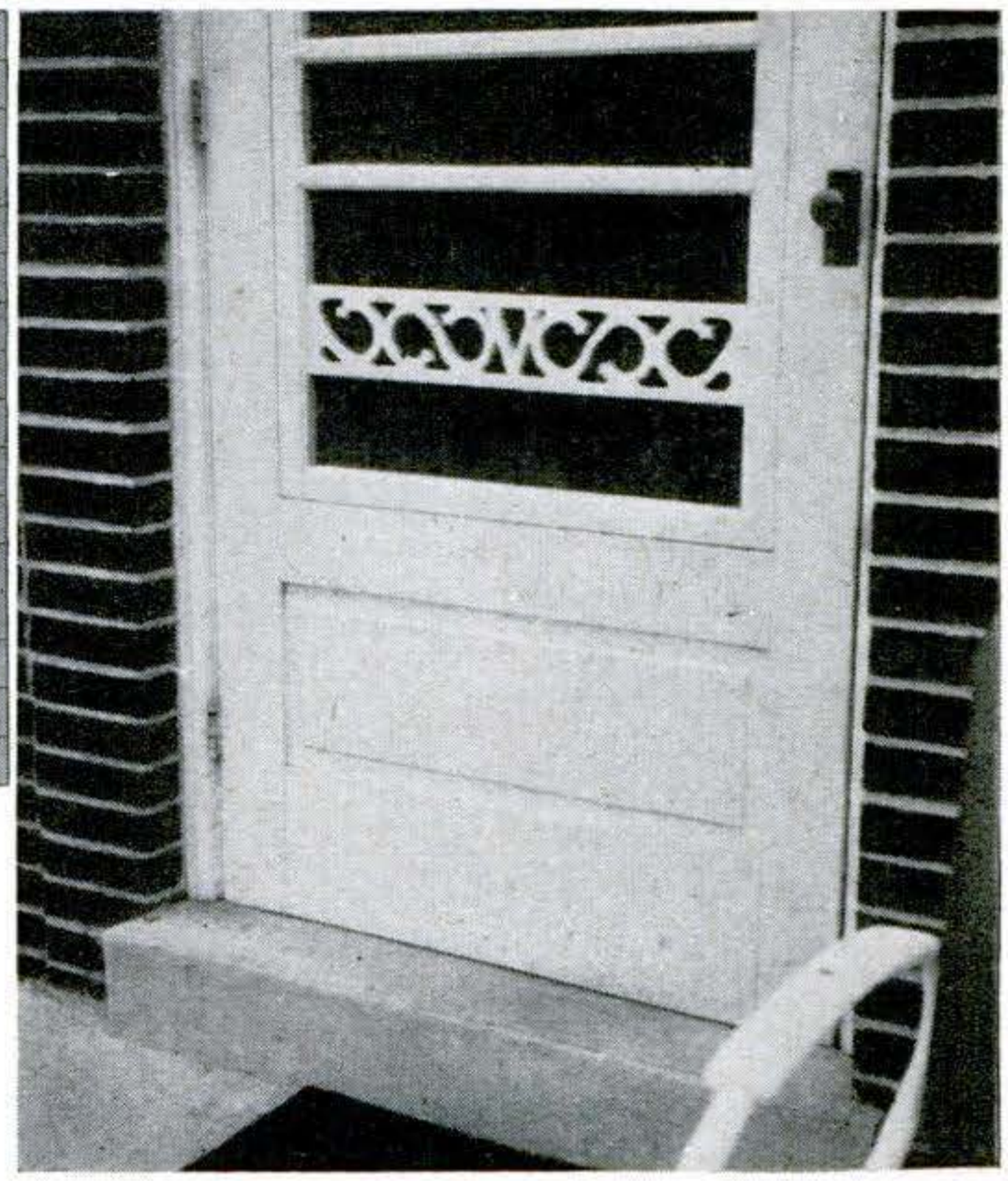
Railing Like Boat Deck's Encloses Your Sun Deck

LENGTHS of 32" weather-treated canvas lashed to a railing made of boat hardware will convert a flat roof or terrace into a sun deck with plenty of privacy.

Fittings you need are metal tubing for corner stanchions, steel cable, clamps, eyebolts and chain plates. Punch brass grommets into seams at the edges of the canvas and lace it in place.—*Elbert Robberson, Port Washington, N. Y.*

Jigsawed Wooden Grille Personalizes Screen-Door Decoration





EASILY cut from hardwood, a scroll or geometric grille adds interest to a screen door.

It will also protect your screen from children's pushes. Dowel or toenail the grille to the stiles at the height of the children's hands.

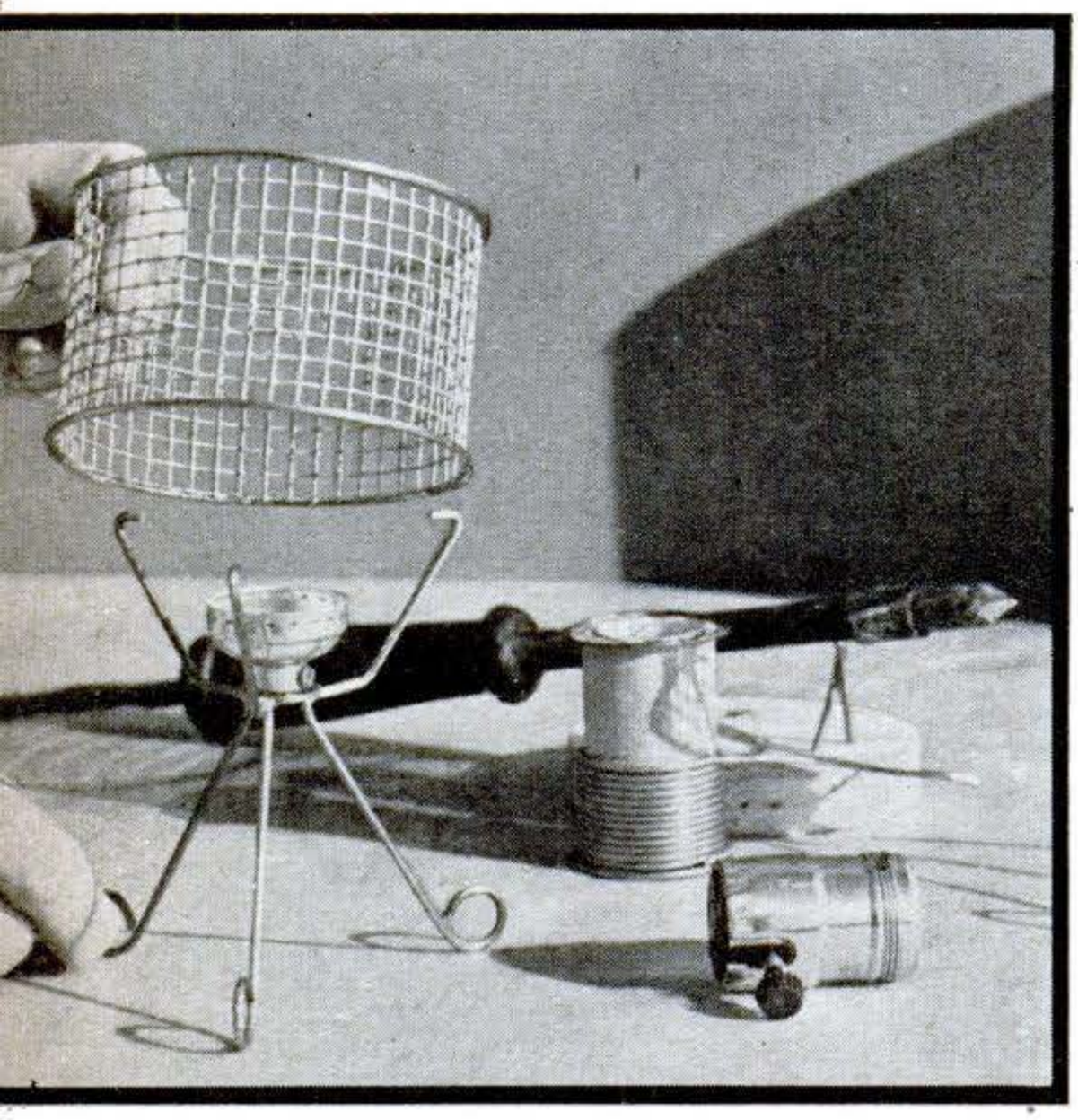
The patterns suggested were designed for a door with a 24" opening between the stiles. They can be adapted to any suitable length by changing the size of the squares on which they are laid out.

An initial incorporated in the design gives it a personal touch. I used a "V" for mine. —*John G. Voelker, Towson, Md.*

Copyrighted material

One-Evening Projects

Three Decorative Lamps for Your Home

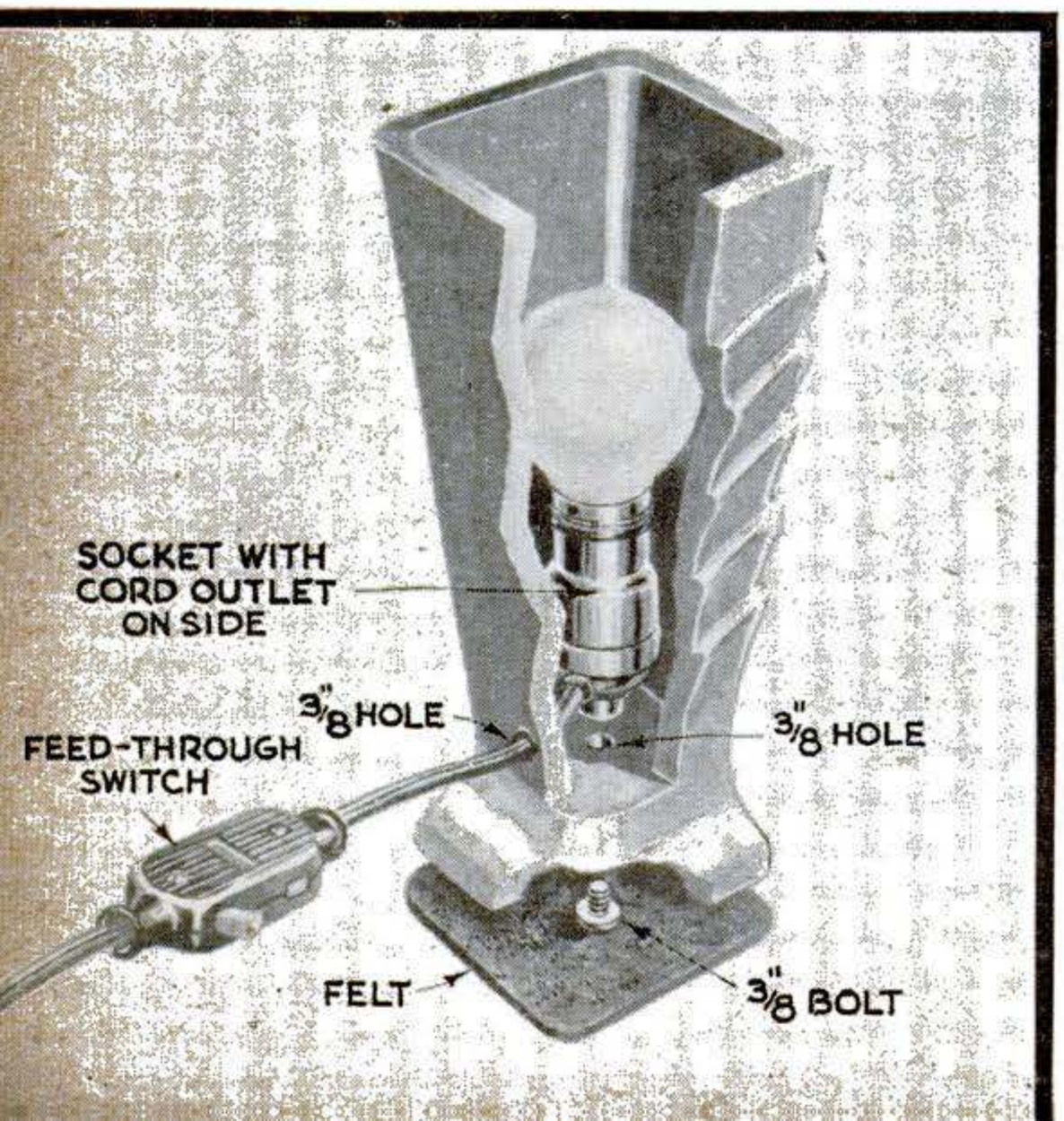


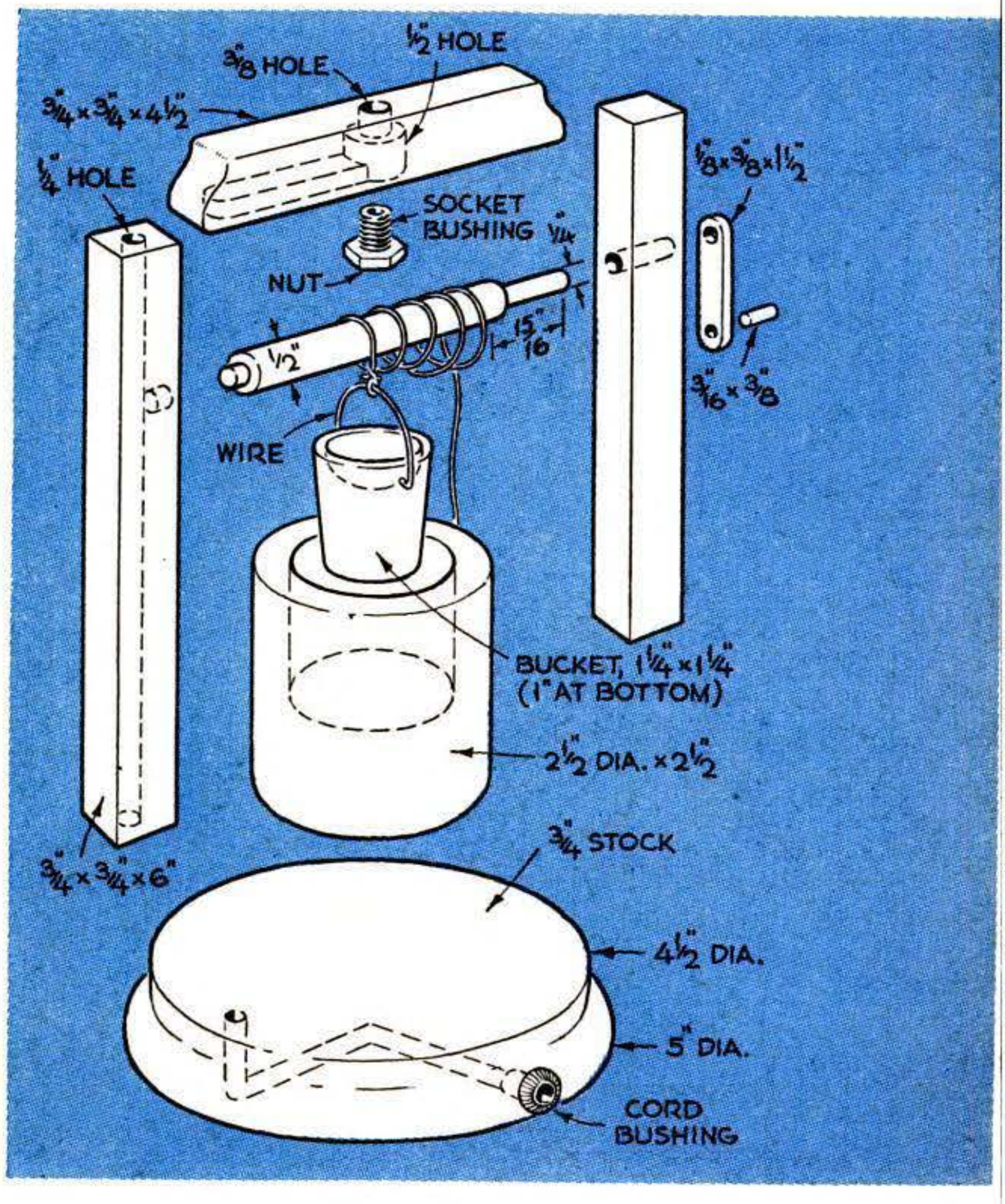
1 Coat-hanger wire and quarter-inch hail screening form the "wrought ironwork" for this attractive modern lamp. First, solder a lamp socket to a washer. Then remove the paint from several straightened coat hangers with sandpaper. Cut and bend the three legs and solder them securely to the washer.

Make two 4″-diameter rings, filing slots where the ends of the wire meet, and floating in solder for strong joints. Cut a 2½″-wide strip of hail screening, bend it into a cylinder, and solder the ends of the cylinder to the inner surfaces of the rings. Position the resulting shade cage on the tops of the three legs and solder the legs to the ring at 120° intervals.

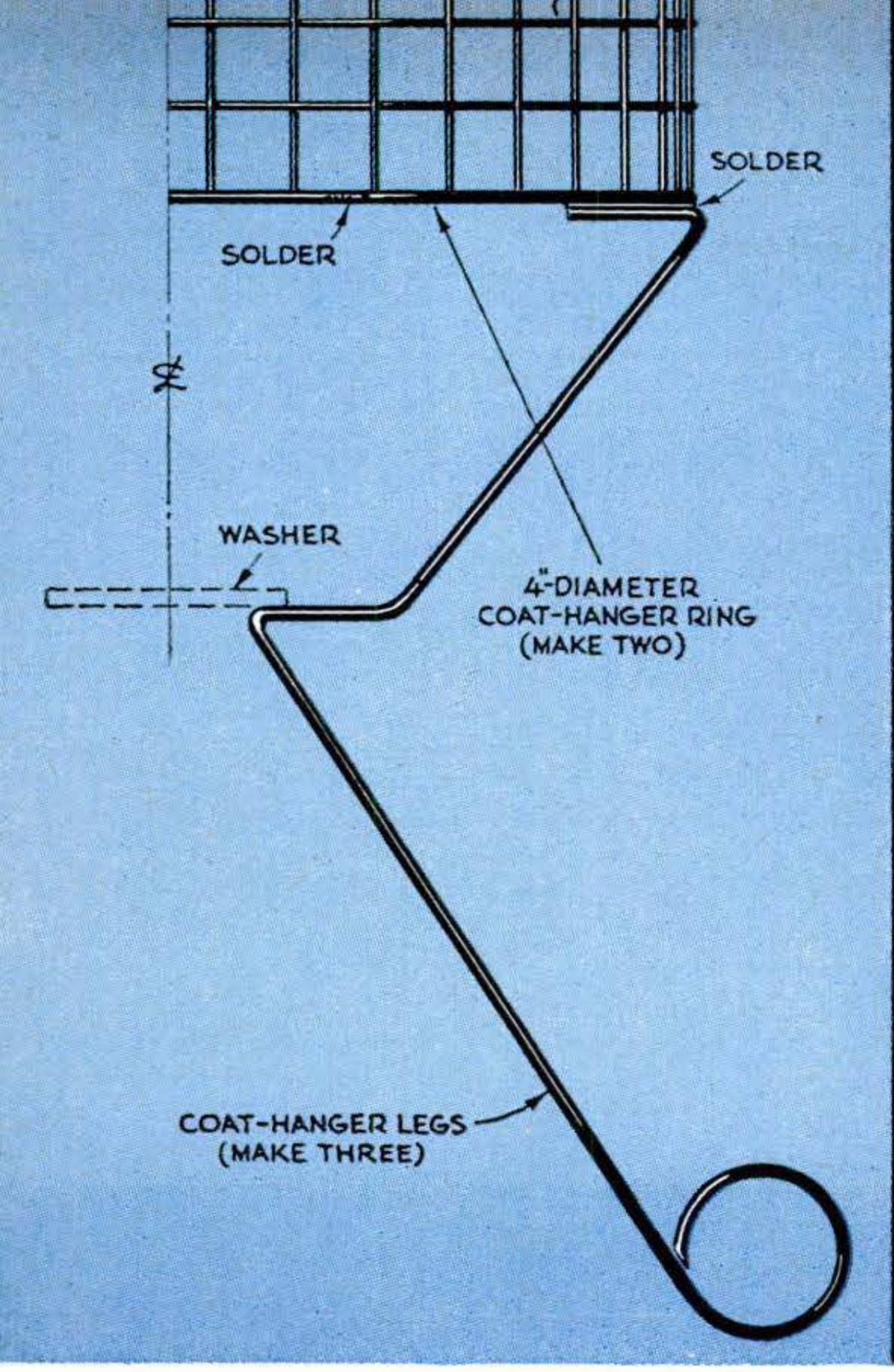
Scrub with detergent to remove soldering paste; then apply flat black paint. Set a 2½″ cylindrical shade in the wire-mesh cage. —*Clifton Morris, Lubbock, Tex.*

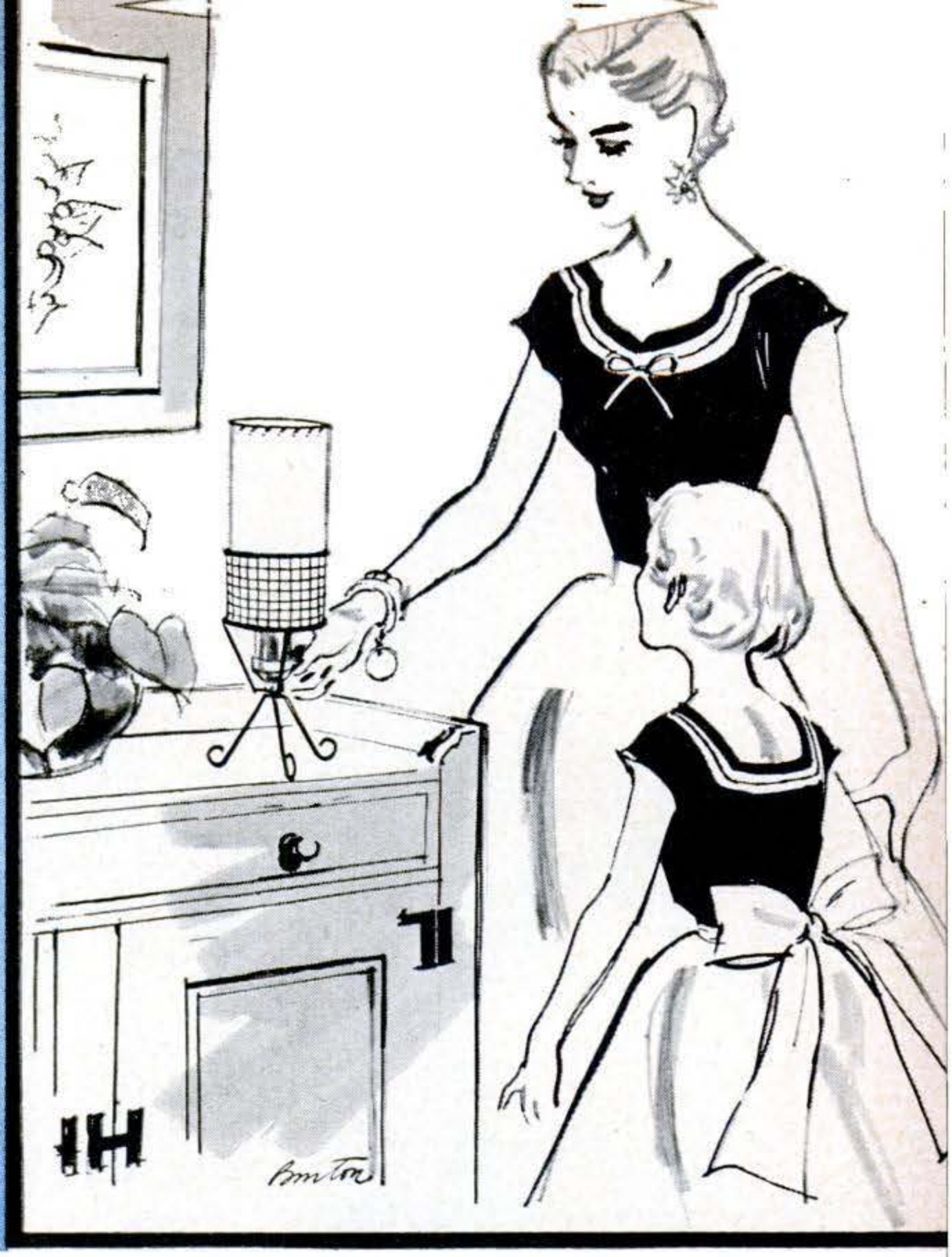
2 A porcelain vase makes a restful TV viewing lamp. Drill one ⅜″ hole through the bottom of the vase and another through one of its sides, using kerosene on the bit to ease it into the porcelain. Pass a ⅜″ bolt through the hole in the base from below and thread it into the back of a light socket. Use the other hole as an outlet for a lamp cord with a feed-through switch cut into it at a point several inches from the vase.—*J. T. Whitaker, Mahanoy City, Pa.*

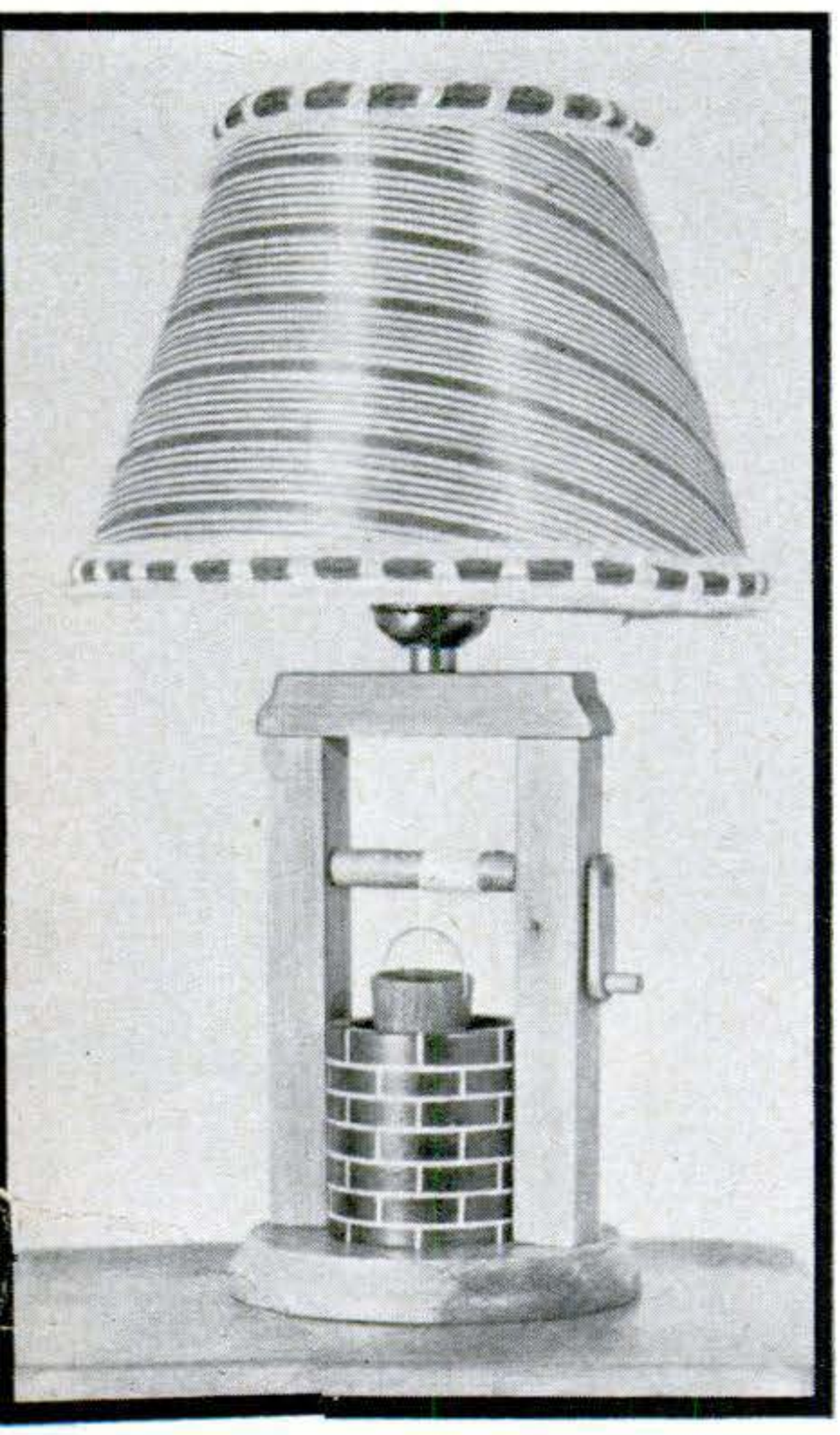




Copyrighted material





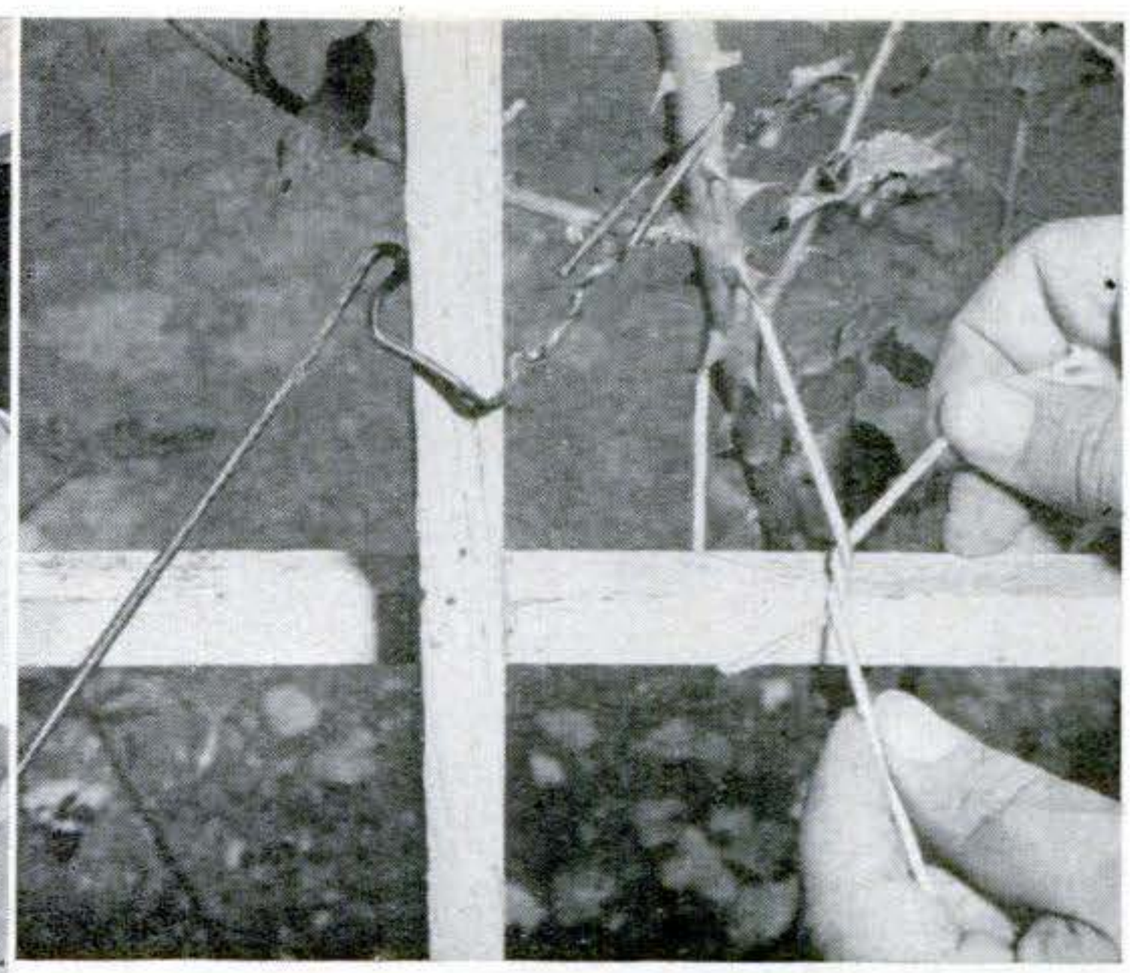


3 **A wood-turning lathe** with a faceplate will help you give this "old-oaken-bucket" lamp a whirl. Turn the base, well-body and bucket from maple or beech, and the windlass from ½" doweling. Make the windlass frame from ¾"-square strips of the same wood. Drill a hole in the center of the cross member for a light-socket bushing and nut; then carve a groove in its undersurface to carry the lamp cord to one of the uprights. Drill a ¼" hole through the upright and the section of the base beneath it. A quarter of the base circumference away, drill a ⅜" hole into the edge of the wood for another cord bushing. Connect the two holes with an L-shaped channel carved or routed in the underside of the base.

Before bradding and gluing the parts together, attach the lamp socket and thread the cord through the holes and channels. Also insert the windlass in the bearing holes before attaching the upright on the crank-handle side. Make the crank from a thin strip of wood and the handle from doweling. Drill holes in the bucket for a wire bail and tie a piece of cord a foot or more in length to the bail for a bucket rope.

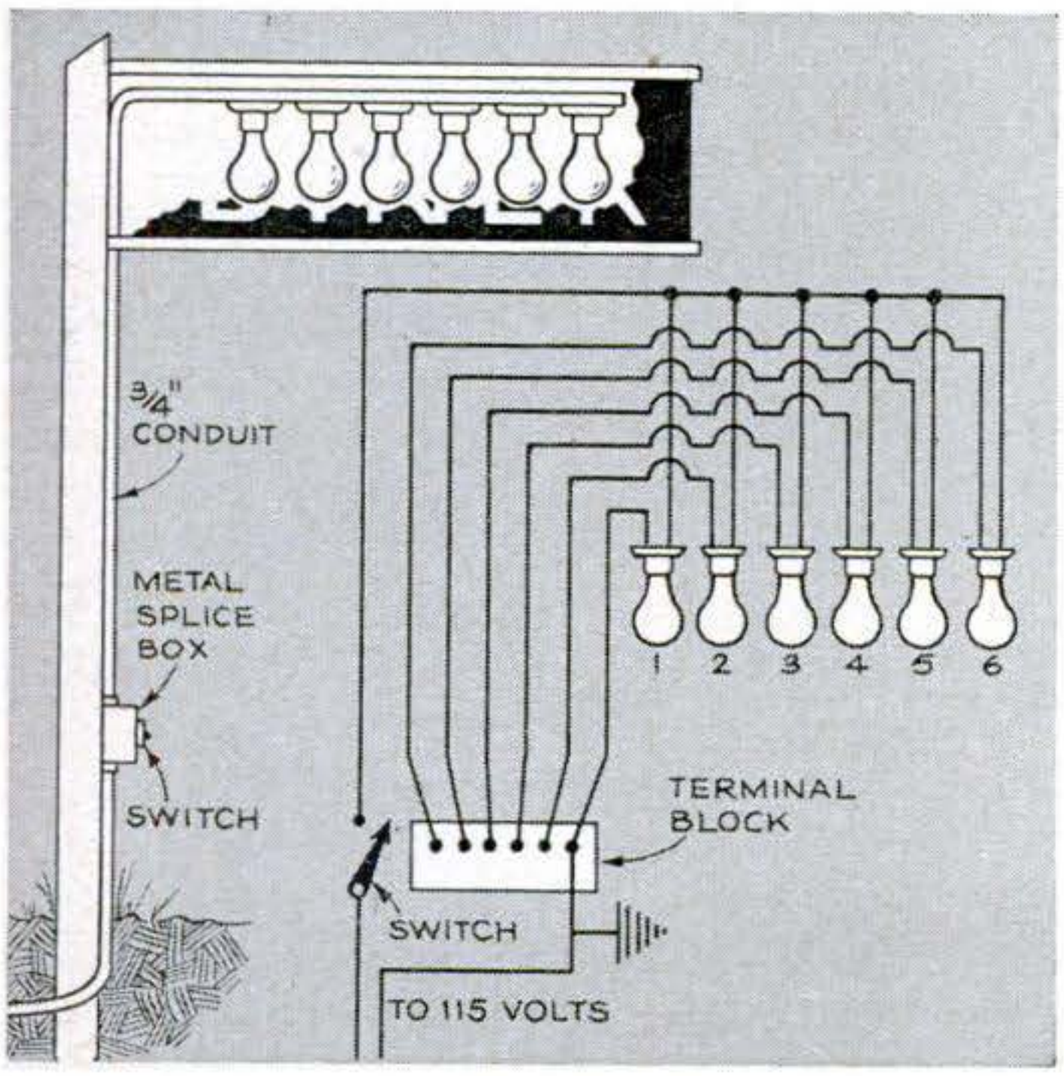
Give all wood parts but the well-body a natural finish (two coats of shellac or varnish). Paint the well-body brick-red and apply gray mortar stripes with a brush or striping tool. Finally, wind the bucket rope around the windlass and, with bucket at height indicated, secure it with several drops of cement.—*Herbert Y. Moon, Orient, N. Y.*

Copyrighted material



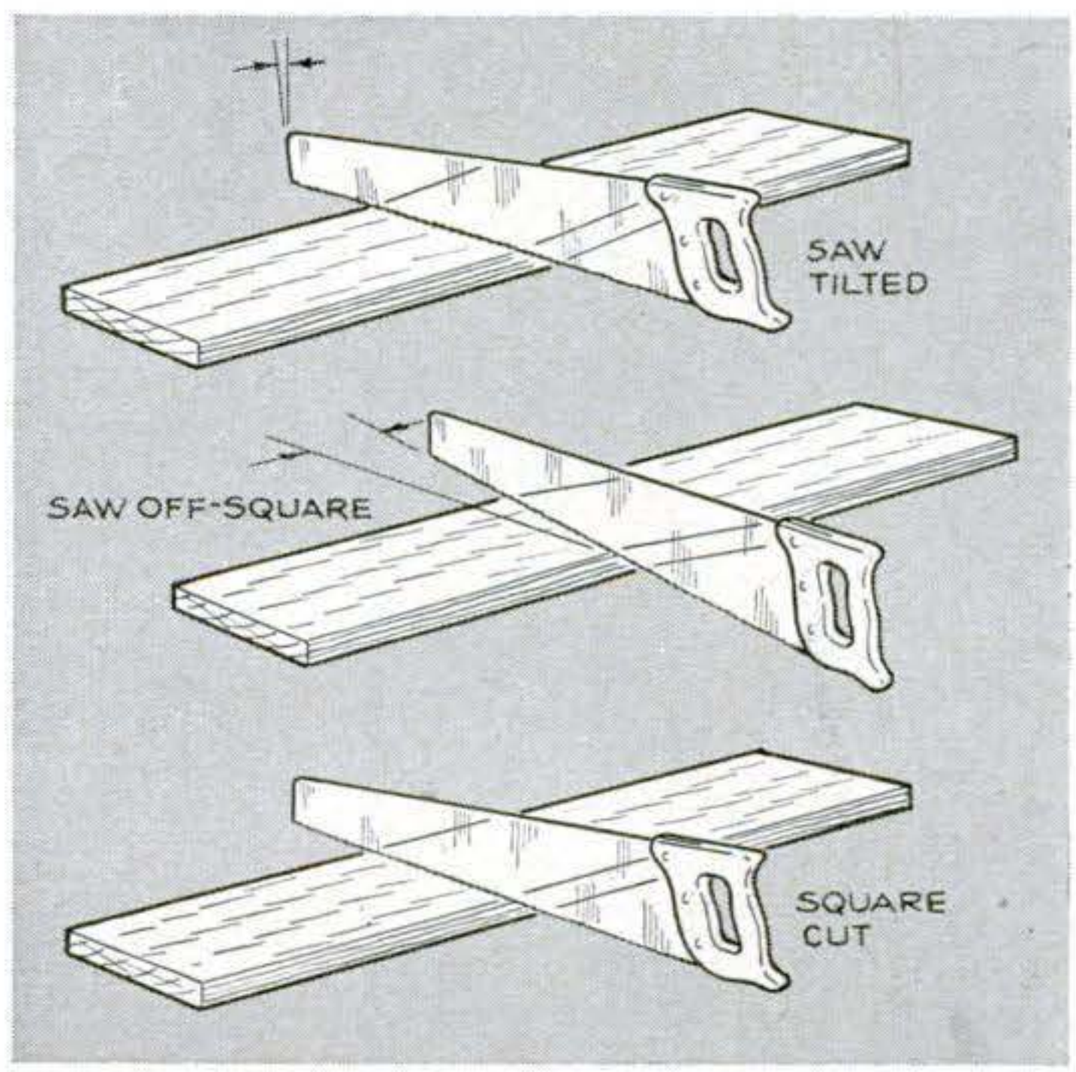
Coat-Hanger Hook Tames Rose Thorns for Tying

THIS coat-hanger hook lets you tie rose bushes up to a trellis without getting stuck by the thorns. Straighten out a wire hanger, leaving the original hook on the end, then bend in a second U-shaped hook 3″ or 4″ behind the first one as shown above. You can then reach in, pull up a stem and hook it temporarily to the trellis, freeing your hands to tie the stem in place.—*Louis Hochman, Sherman Oaks, Calif.*



Kink Reduces Bulb Changing

FOR easier light-bulb changing in my business sign, I rigged up a terminal block with separate circuits for six bulbs. Using one bulb at a time, I plugged the line lead into that terminal, and when that bulb burned out switched to the next circuit.—*Dick May, Riggins, Idaho.*



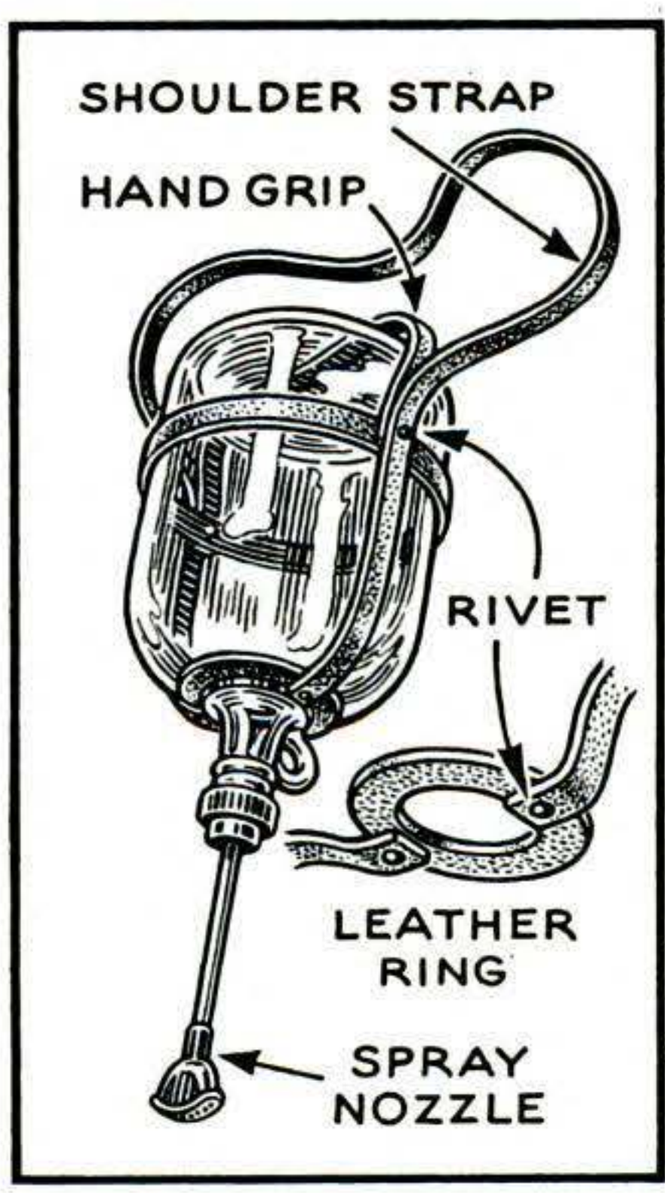
Bright Saw Cuts Square

YOU can saw true and square without a guideline if you keep your handsaw blade shiny. It's an old carpenter's trick to watch the board reflection in the bright blade. When the image is a continuation of the work, your cut is square.—*Robert Burgett, Hamilton, Ohio.*

Copyrighted material

Harness Holds Sprayer

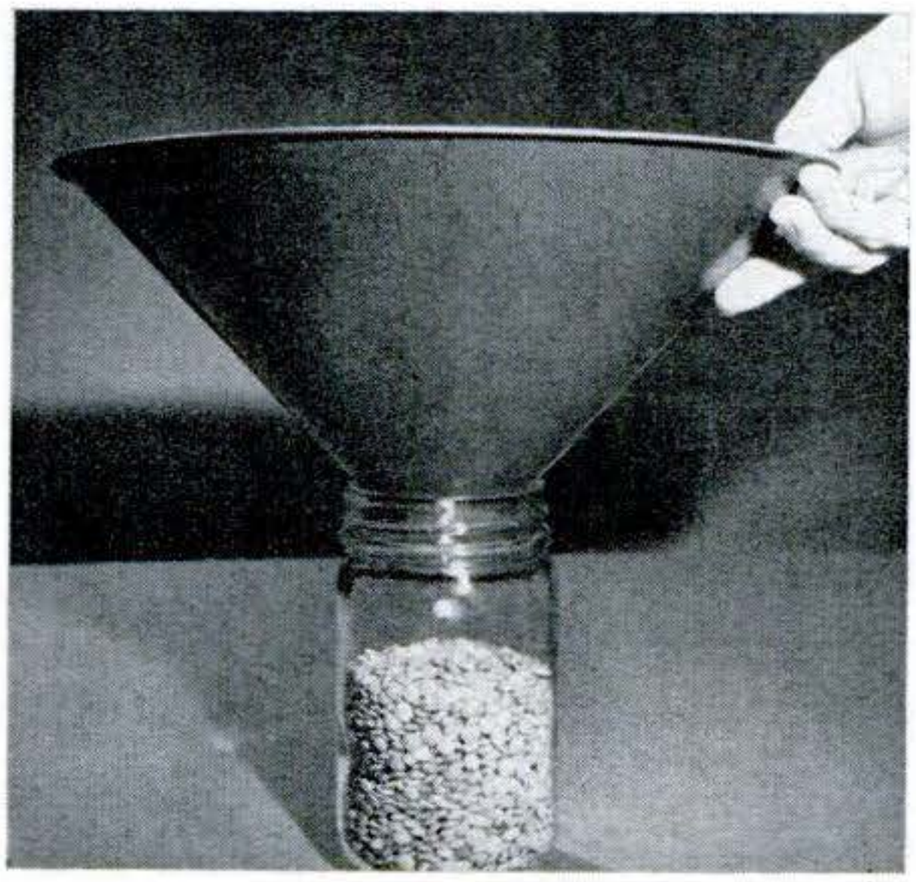
SPRAYING weed killer and other lawn chemicals is easy if you make a shoulder harness like this to carry the awkward one-gallon jug. Use web or leather straps and rivet them together. The spray nozzle, available at hardware stores, is made to fit such jugs.—*Harold C. Kimball, Salt Lake City, Utah.*



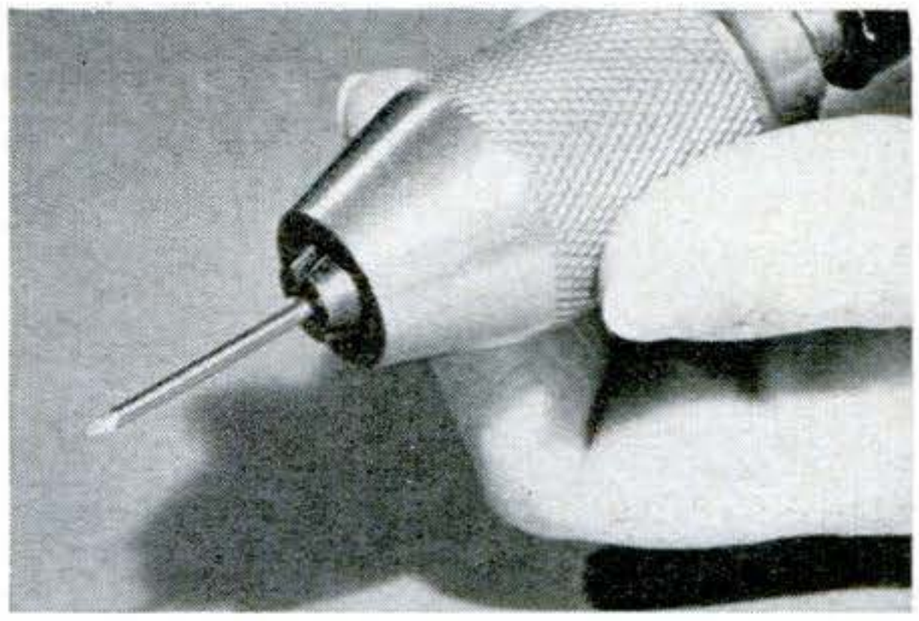
Drill Removes Dust

POWDERED concrete in a drilled hole forms paste if you dampen it, making easy removal possible. Re-insert the star drill, give it a few turns, and pull the paste out.

DO IT THE EASY WAY

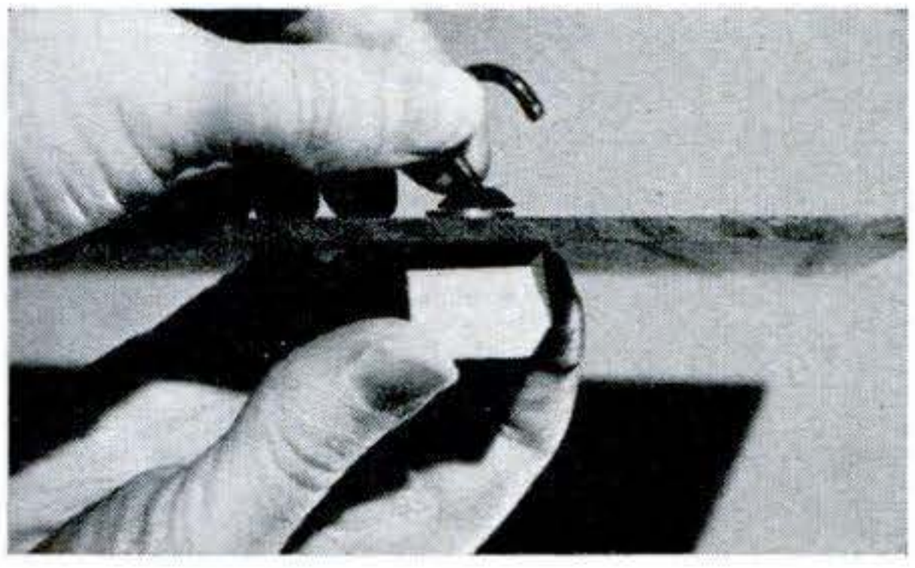


A WORK-LIGHT SHADE is a ready-made funnel for pouring small items such as beans, seed and other dry materials into jars or bags. You'll have no spillage.

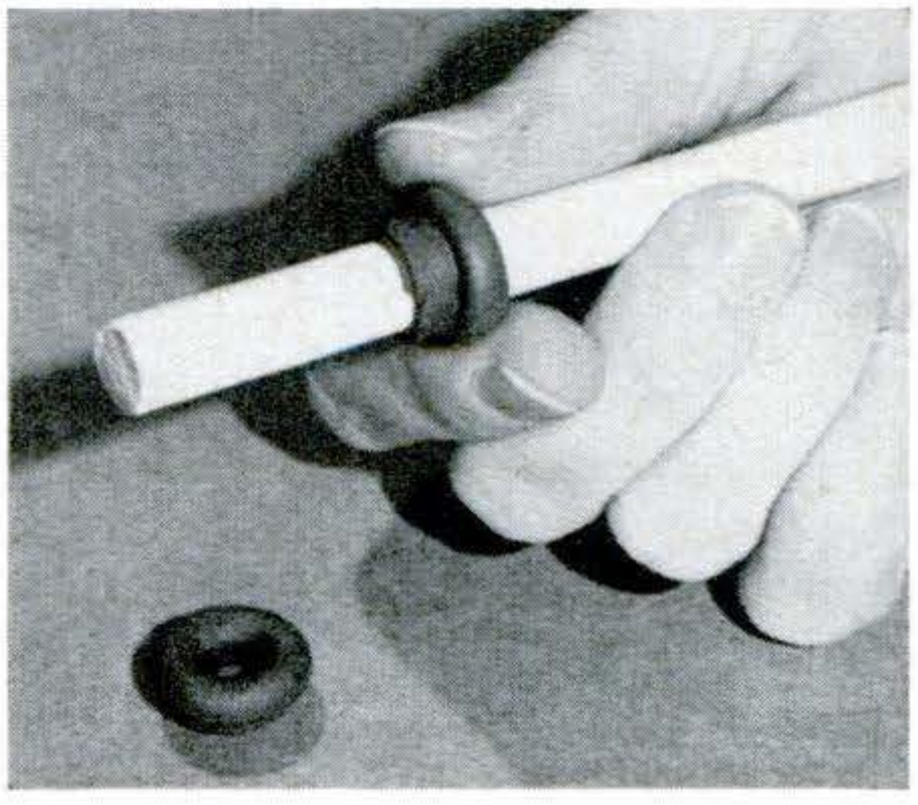


IN DRILLING PLASTER, a nail with the head cut off makes a good throwaway bit. For larger holes, hammer the point flat and sharpen with a file.

CUP HOOKS AND SCREW-TYPE BRACKETS can be used in perforated hardboard instead of the regular hangers, if you back the screws with wood blocks.



NEED A GROMMET? You can make a rubber one with a turn or two of friction tape around a dowel of the right size. Roll the tape up and off.



Copyrighted material

Aluminum Barrow Boosts the Payload

This contractor-type barrow is light and tough, easy to build, and it cuts dead weight in half.

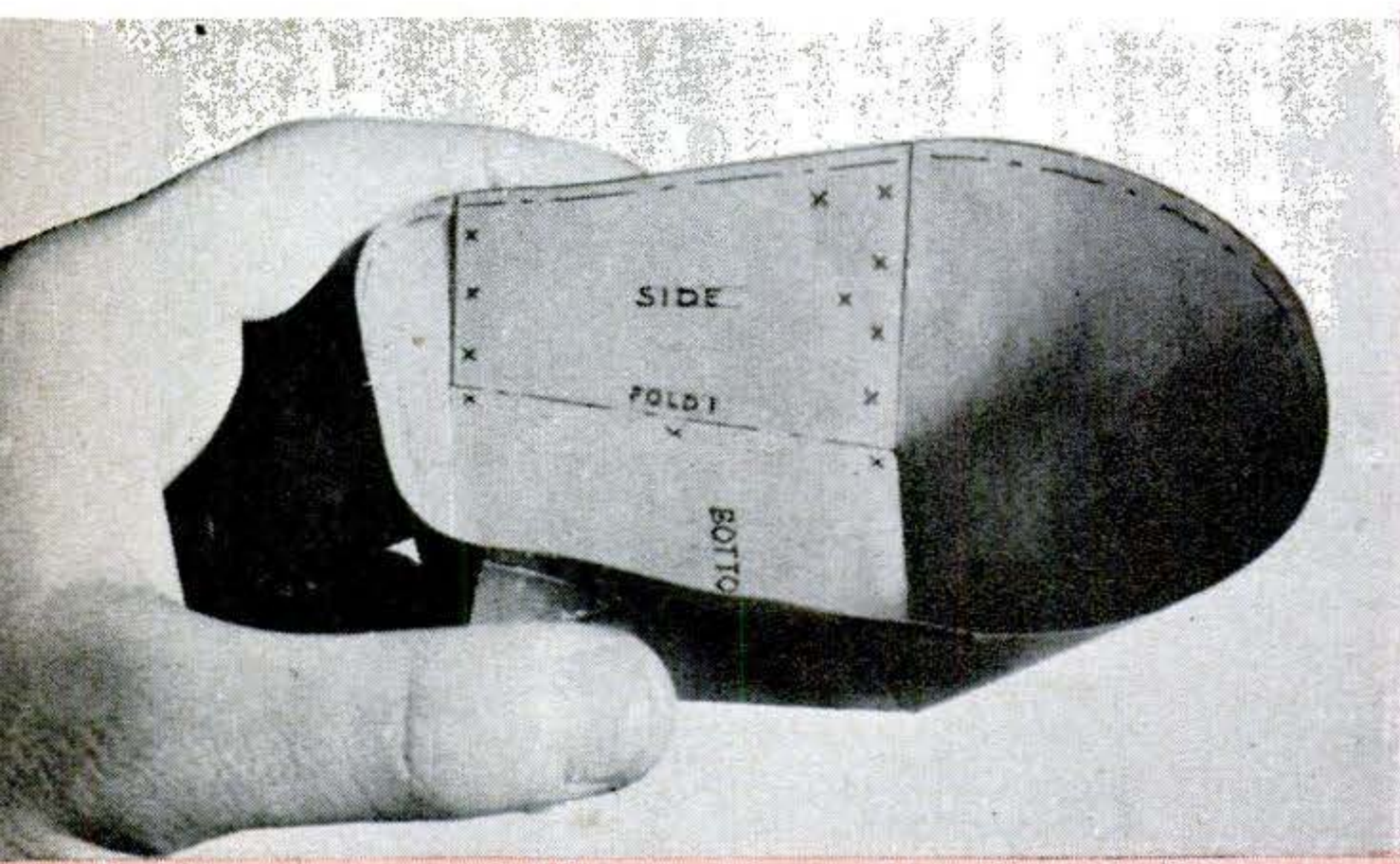
By M. G. O'Leary

SHOVING around a 70-lb. wheelbarrow is good for the back muscles. But if you want exercise, why not halve the weight of the barrow and put the extra pounds in the payload?

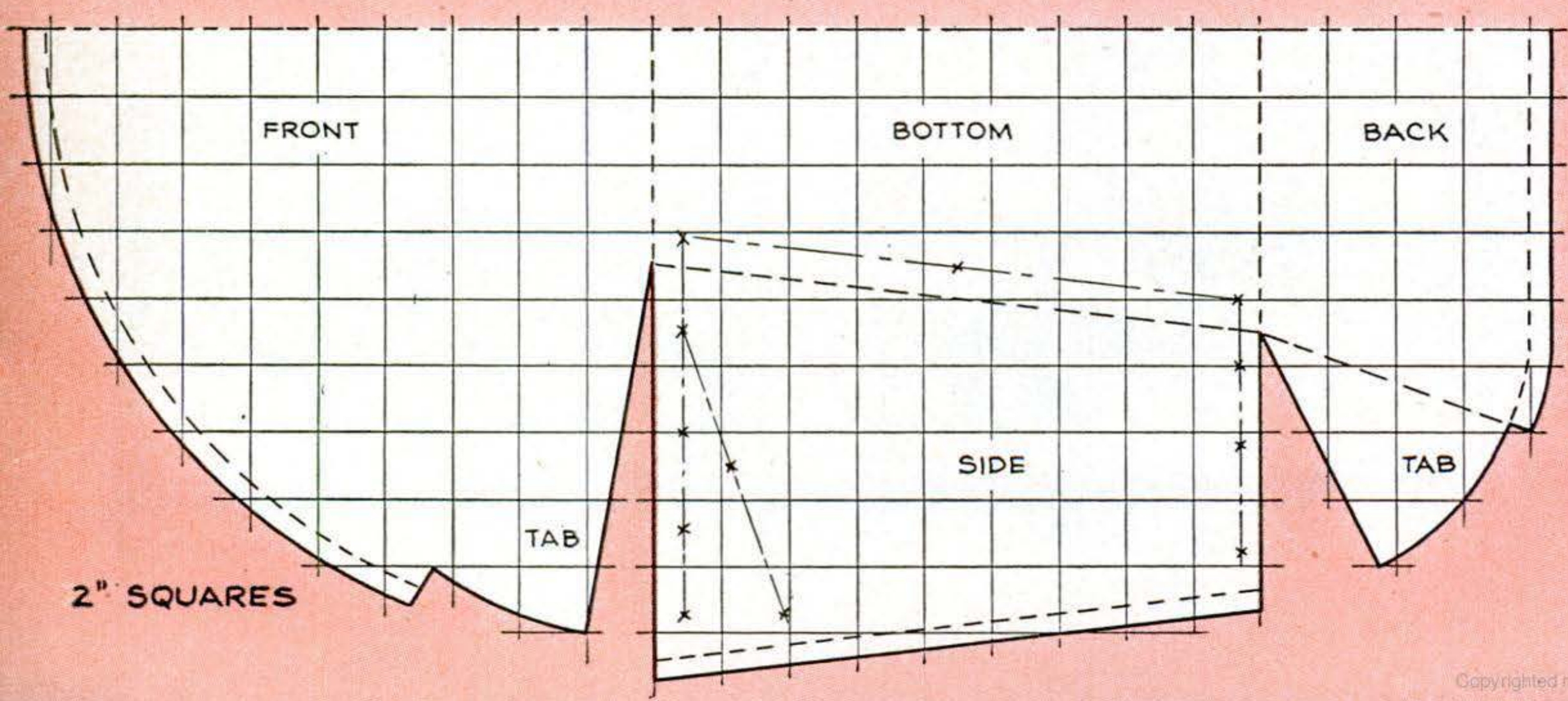
This husky aluminum wheelbarrow does just that. Made from standard stock for half the cost of a factory job, it weighs less than 30 lb.

Assembling the frame. The barrow frame dimensions suit a wheelbarrow with a 16″ pneumatic-tired wheel. If you use a smaller wheel, increase the thickness of the pine wedges that support the pan.

The main frame members are 2″-square aluminum tubing and the legs, cross members, vertical pan supports and diagonal bracing are all cut from 1″ angle aluminum. Pillow blocks align the wheel. All connections are made with ¼″

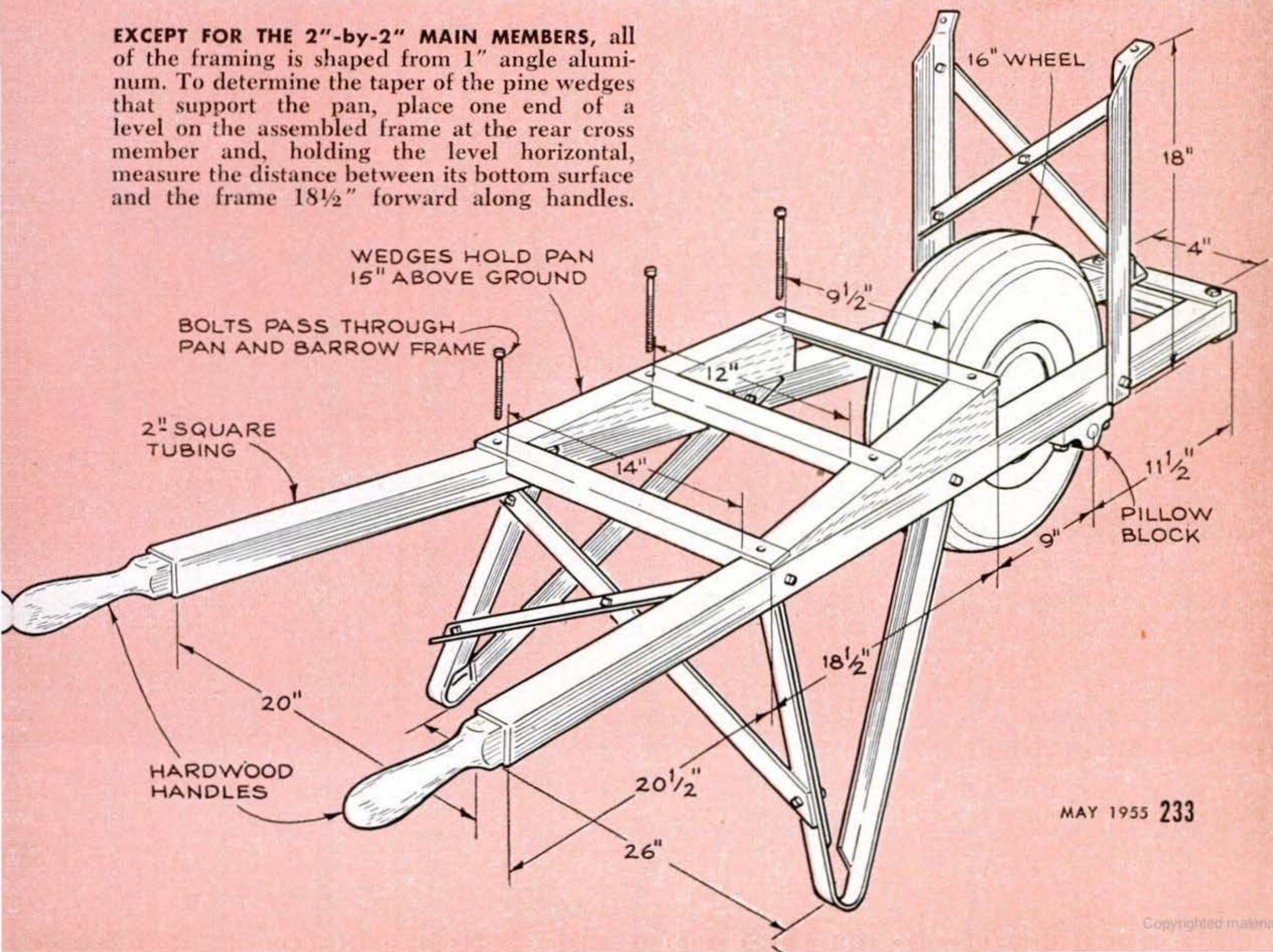


BEFORE SHAPING THE BARROW PAN, make a miniature pan from heavy wrapping paper, using the one-eighth scale drawing below as a template. With a little bending, the top edges of the model can be brought to a single, horizontal plane. Checking the angles of the folds in this miniature pan, you can shape the aluminum accurately, without over- or under-bending the springy stock.

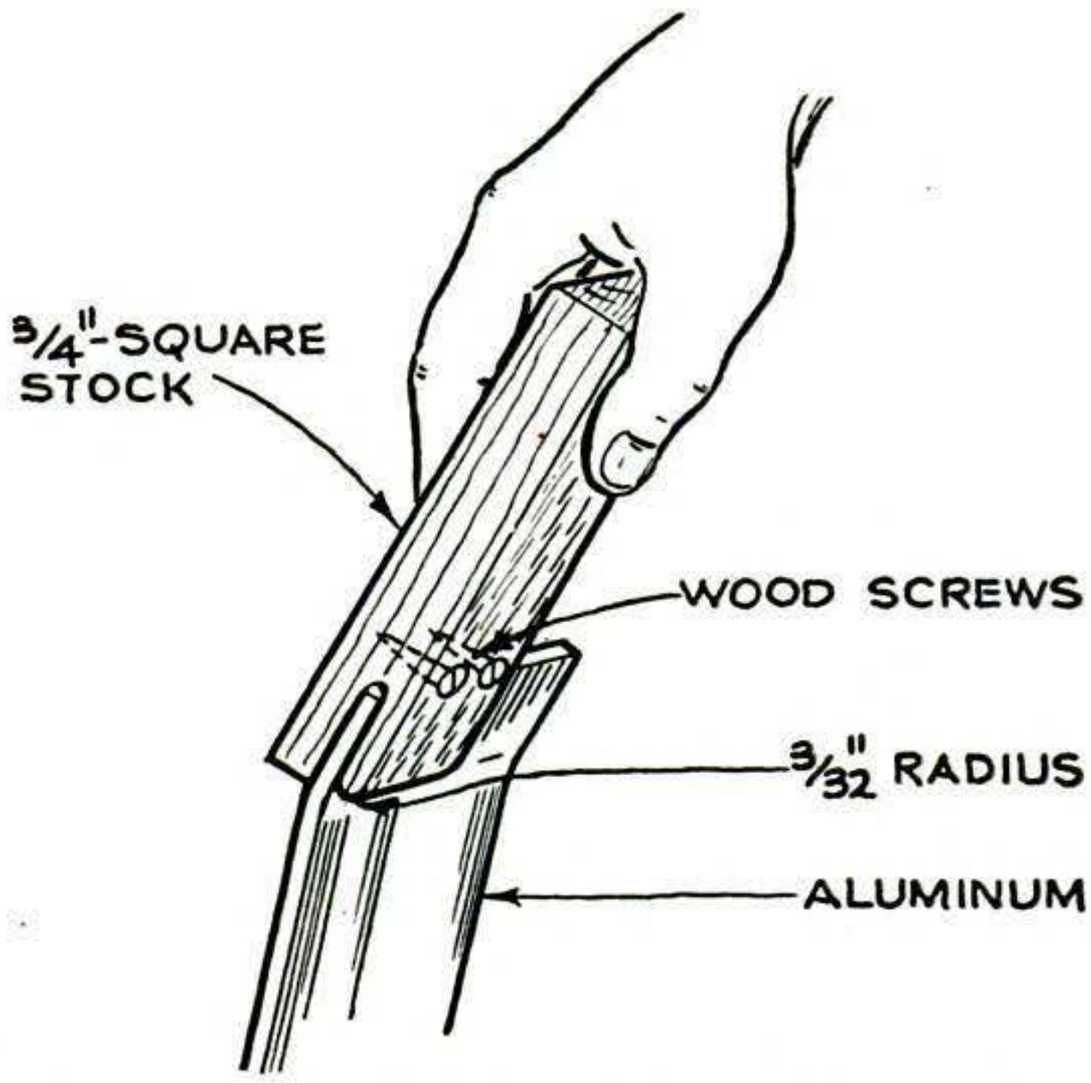


Copyrighted material

EXCEPT FOR THE 2"-by-2" MAIN MEMBERS, all of the framing is shaped from 1" angle aluminum. To determine the taper of the pine wedges that support the pan, place one end of a level on the assembled frame at the rear cross member and, holding the level horizontal, measure the distance between its bottom surface and the frame 18½" forward along handles.



Copyrighted material



BEADING TOOL IS MADE OF HARDWOOD, reinforced with screws. The bending slot is 3/32" from one face of the block, and 5/8" deep. Round the thin lip to insure smooth bends.

bolts, washers and nuts. The wood handles are turned from 1⅞"-square stock.

Shaping the barrow pan. Scale up the barrow pan on a 40"-by-48" sheet of 16-gauge aluminum. Cut along the solid lines with large sheet-metal hand shears.

Before making any folds in the metal, form a miniature barrow pan from wrapping paper and study the angles of the folds and the curvature of the lip of the pan. This is important because once the aluminum has been bent it is hard to correct any errors.

To make the folds in the aluminum, lay the trimmed sheet on a box whose top is slightly smaller than the bottom of the pan. Letting the aluminum areas that will form the sides and ends of the pan overhang the box, set one of the fold lines flush with a box edge. In effect, this box edge forms one of the jaws of an improvised vise. For the other "jaw," lay a heavy board on top of the aluminum. Kneeling on the board, use a block of hardwood and a mallet to bend the metal down to the required angle. Repeat the operation to shape the other three pan walls. Then curve the top edges of the end walls with a mallet.

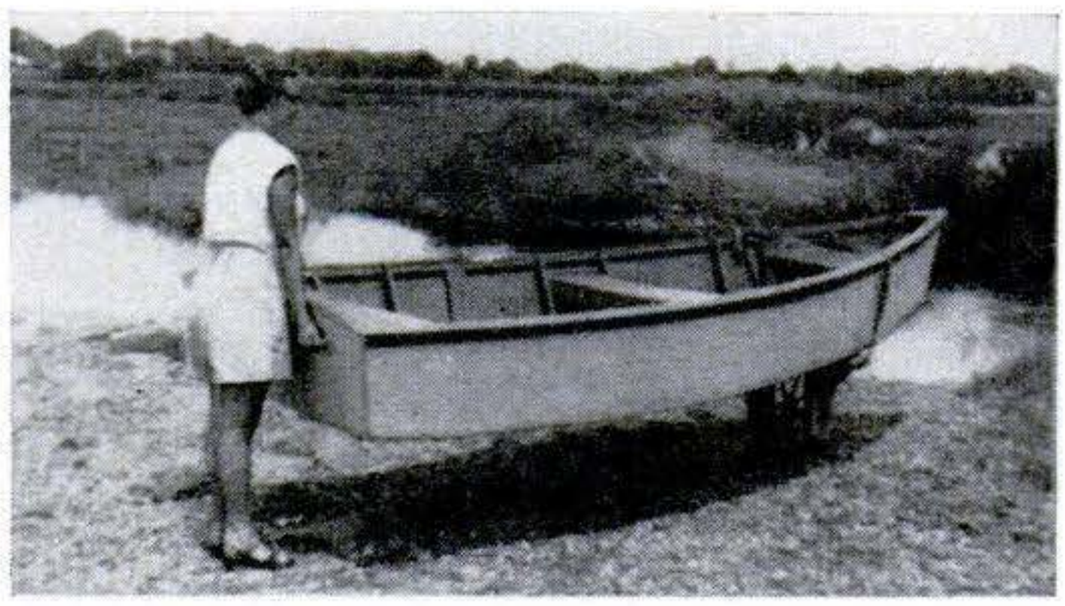
With the pan brought to shape, use C clamps to hold the joints in alignment and drill a single rivet hole through each lapped section near its top. Force a self-tapping screw into each hole.

Beading the lip of the barrow pan. From an 8" length of ¾"-square hardwood, make a beading tool like the one shown in the drawing. Starting at one of the joints, slip the beading tool over the edge of the pan and bend the aluminum outward slightly. Sliding the tool along, continue making bends at ½" intervals until you have gone completely around the edge. If the rounded corners at the rear of the pan give you trouble, heat the metal with a blowtorch, taking care not to burn it. The partially annealed aluminum can then be beaded easily. It will take three or four rounds of bending to bring the flange to a right-angle bend.

Now, shape a 9' length of galvanized-steel wire to fit into the partially beaded edge. Trim the ends of the wire to form a butt joint at the center of the pan front. Using heavy pliers, clinch the wire in place at strategic points. Crimp the rest of the flange with a series of close-spaced bites.

You can now drill the rest of the rivet holes. Insert aluminum rivets and form the heads with an ordinary hammer.

Finally, drill holes in the bottom of the pan for the six bolts that attach it to the wheelbarrow frame. END

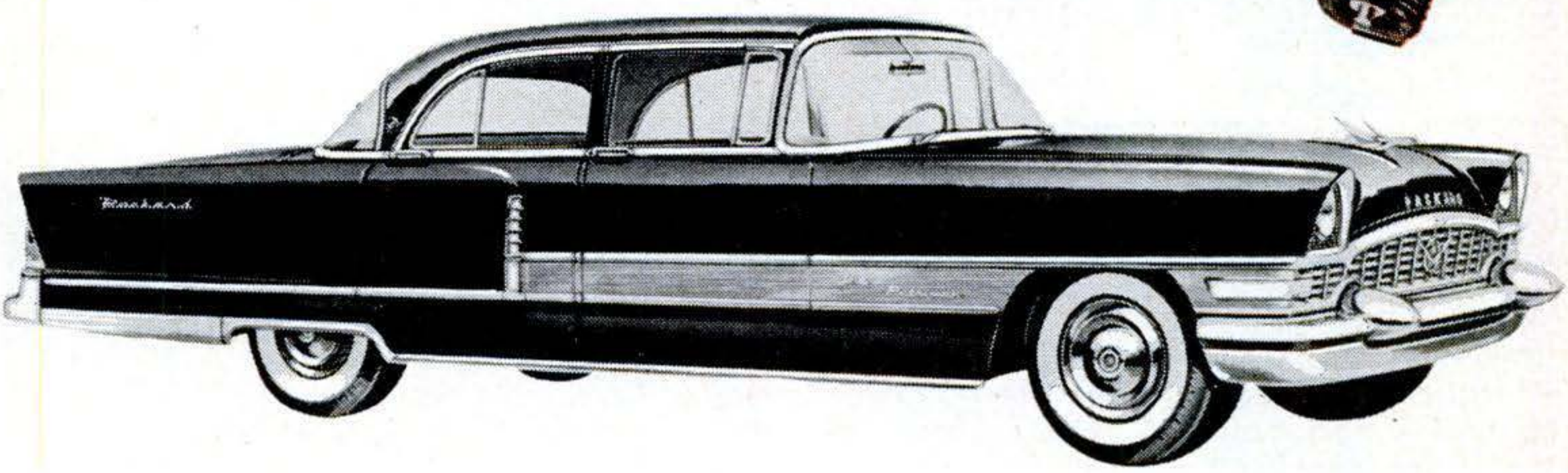


Barrow Hauls Boat to Water

To move a flat-bottomed boat a short distance to water, you can mount a wheelbarrow wheel in a fork made of scrap wood and nailed to a crosspiece. Use lengths of pipe for axle bearings. Held with a luggage strap, the barrow takes the weight when you lift the boat by regular transom handles. For a V or round bottom, shape the cross member to fit.—*M. C. Beveridge, Fairfield, Conn.*

Copyrighted material

CAR	*Packard*
DISTANCE	*25,000 Miles*
TIME	*238 Hours, 41 Min.*
SPEED	*104.73 M.P.H. Average*
SPARK PLUGS	*5-RIB Champions!*



NEVER BEFORE HAS ANY CAR GONE SO FAR, SO FAST!

A Packard Sedan powered by a pre-production 1955 Packard Patrician engine and equipped with regular 5-Rib Champion Spark Plugs made automotive history in this 25,000-mile endurance test supervised by the AAA.

Its dependable Champions functioned perfectly as the car covered a distance greater than the earth's circumference at an average of 104.73 m.p.h.—one of the most remarkable performance runs ever made by a motorcar.

MORE PROOF that full-firing Champions and top performance are a natural combination in *any* car. *MORE REASON you* should make the change to Champions—soon!

CHAMPION SPARK PLUG COMPANY, TOLEDO 1, OHIO

AMERICA'S FAVORITE

5-RIB

CHAMPION

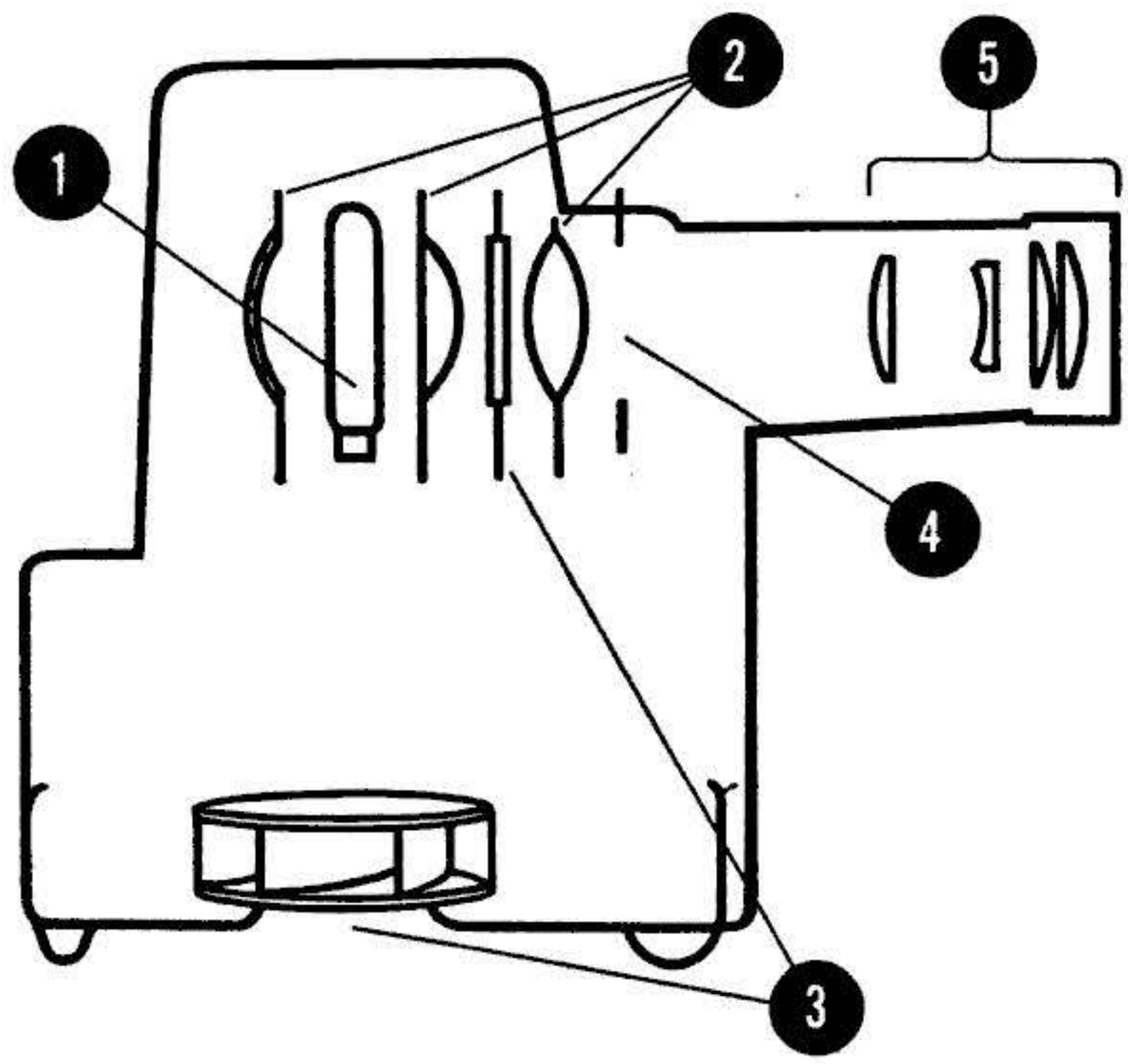
SPARK PLUGS

NEXT TIME YOUR CAR IS LUBRICATED—HAVE THE SPARK PLUGS CHECKED. IT PAYS!

Copyrighted material

What makes a Good Slide Projector GOOD?

You can't judge a car by its coat of paint. Likewise, there's more to making a good color slide projector than meets the eye. It has to be a completely engineered system made up of several important sub-systems. If the engineering is good throughout, you have a good projector. As an example, let's use a Kodaslide Signet Projector, shown in the cross-sectional diagram below.



1. This is basic power. The higher the lamp wattage, the brighter the screen image. Choose enough wattage to meet your particular needs. 500 watts, with an efficient condenser lens system, provide extra-brilliant big pictures. 300 watts give intermediate brilliance. If you're looking for economy, 150 watts often provide adequate illumination.

2. This is efficiency. A projector's condenser-lens-and-reflector system collects and directs the light from the lamp to your slide. The more efficient this system, the brighter the screen illumination. While a single condenser lens may be used, a compactly designed two-lens condenser system, such as shown here, provides greater efficiency.

3. This is safety. Since all lamps radiate heat, special protection for slides is required with higher wattage lamps. For best protection this should consist of: (*a*) an extra-thick, high-efficiency heat-absorbing glass between lamp and slide, (*b*) an efficient blower cooling system (make sure the blower is quiet and provides a smooth flow of air) and, (*c*) baffles to direct air in channels over lamp, condenser lens system, and slide.

4. This is convenience. Slide-changing mechanism should provide smooth, rapid scene change for eye comfort; offer no chance for mix-ups. Kodaslide Projectors' unique vertical feed system provides smooth, almost instantaneous slide change; prevents jarring or movement of projector; eliminates unintentional repeat projection.

5. This is picture quality. A *good* projection lens will faithfully reproduce on the screen all the color and detail of your slides with edge-to-edge sharpness and clarity. Such fine definition and color correction are found in the 5-inch Kodak Projection Ektanon Lenses. You have a wide choice of projection distances and picture sizes to fit living room, classroom, or auditorium.

Lamp Wattage	Screen Width	Distance from Projector to Screen 35mm (24 x 36mm) slides
500	30 inches	10 feet
300	4 feet	15½ feet
150	5 feet	19 feet
	6 feet	23 feet
	7 feet	25½ feet
	9 feet	32½ feet

All of the above essentials have been given due weight in designing Kodaslide Projectors (see facing page). Your Kodak dealer will be glad to demonstrate them and give you specific advice.

Copyrighted material

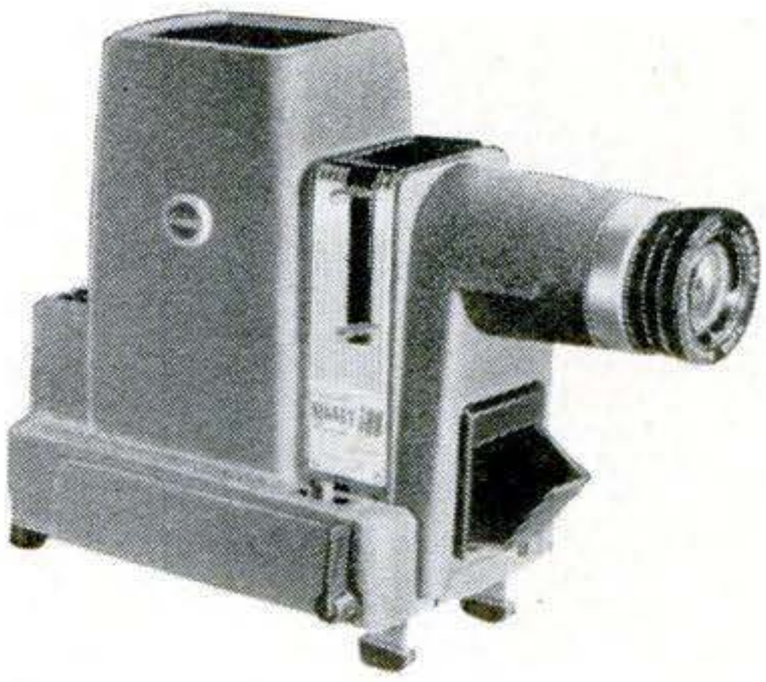
Here are the newest Kodak projectors

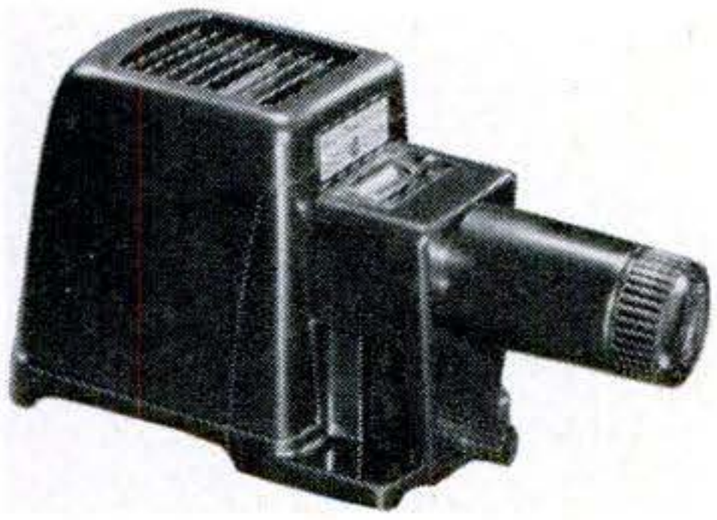
Kodaslide Signet 500 Projector

Lumenized optics, 500-watt lamp for amazingly bright pictures; Kodak Projection Ektanon Lens, 5-inch f/3.5; automatic take-up changer gives smooth, quick slide changing; slides stacked in order shown, in receiver or Kodaslide Box (see below); accepts Airequipt Changer; individually spring-loaded front legs for 0-12° elevation; adjustable rear leveling leg; quiet, powerful impeller-type blower. $72.50. With 5-inch f/2.8 lens, $79.50.

Kodaslide Signet 300 Projector

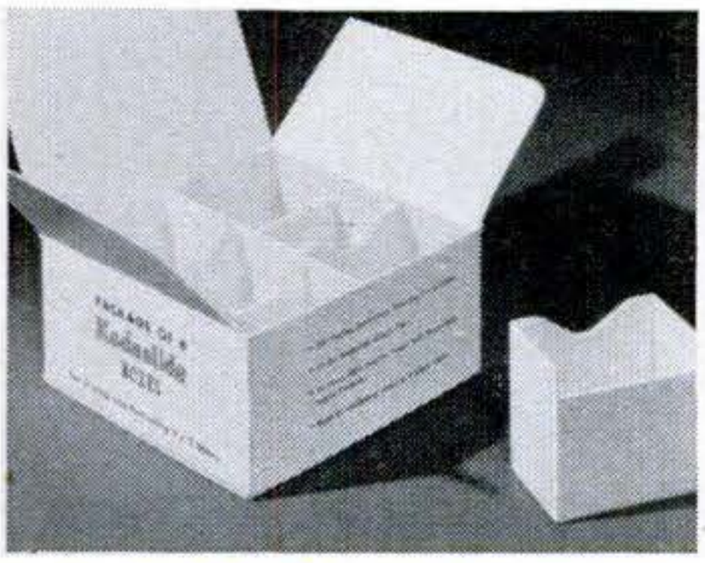
Budget-priced 300-watt version of Signet 500. Has same superb optics, unique slide-handling system, many other features of Signet 500. With f/3.5 lens only. $59.50.



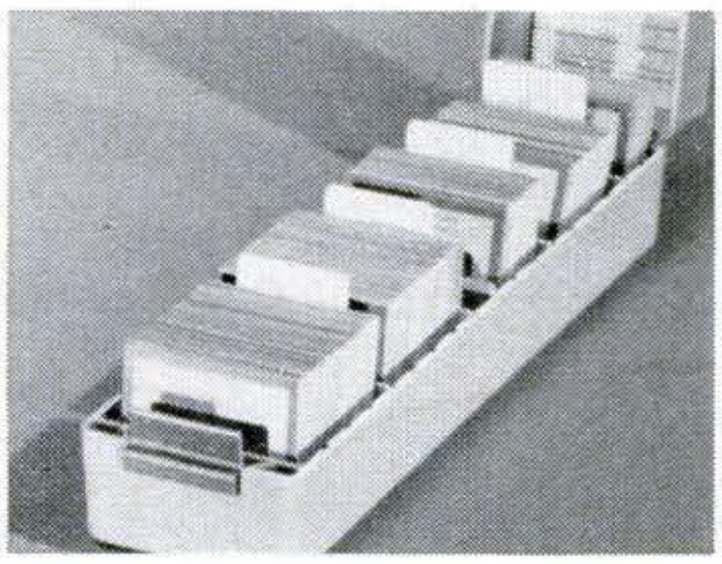


Kodaslide Merit Projector

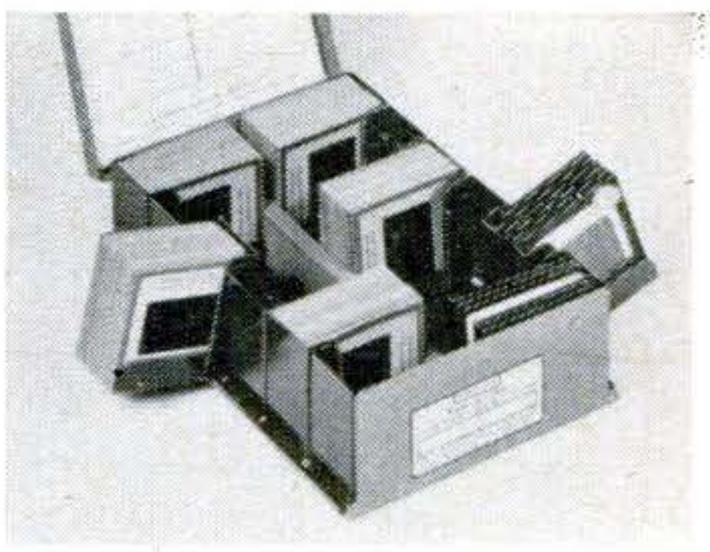
150-watt lamp; fine 5-inch f/3.5 Lumenized lens; non-jar feeding; convection cooling; surprising brilliance and clarity at modest cost. Only $23.95.



KODASLIDE BOX—Holds 20 cardboard slides. Serves as slide receiver with the Signet projectors. Fits into Kodaslide Ready-File. 6 for $.75.



KODASLIDE READY-FILE—Just right for carrying. Holds 200 cardboard or 100 stereo slides. Accepts 6 Kodaslide Boxes. Includes index. $1.95.



KODASLIDE COMPARTMENT FILE—Holds 240 cardboard or 96 glass slides. 12 swing-out compartments. Includes index. $3.94.

Prices are list, include Federal Tax where applicable, and are subject to change without notice

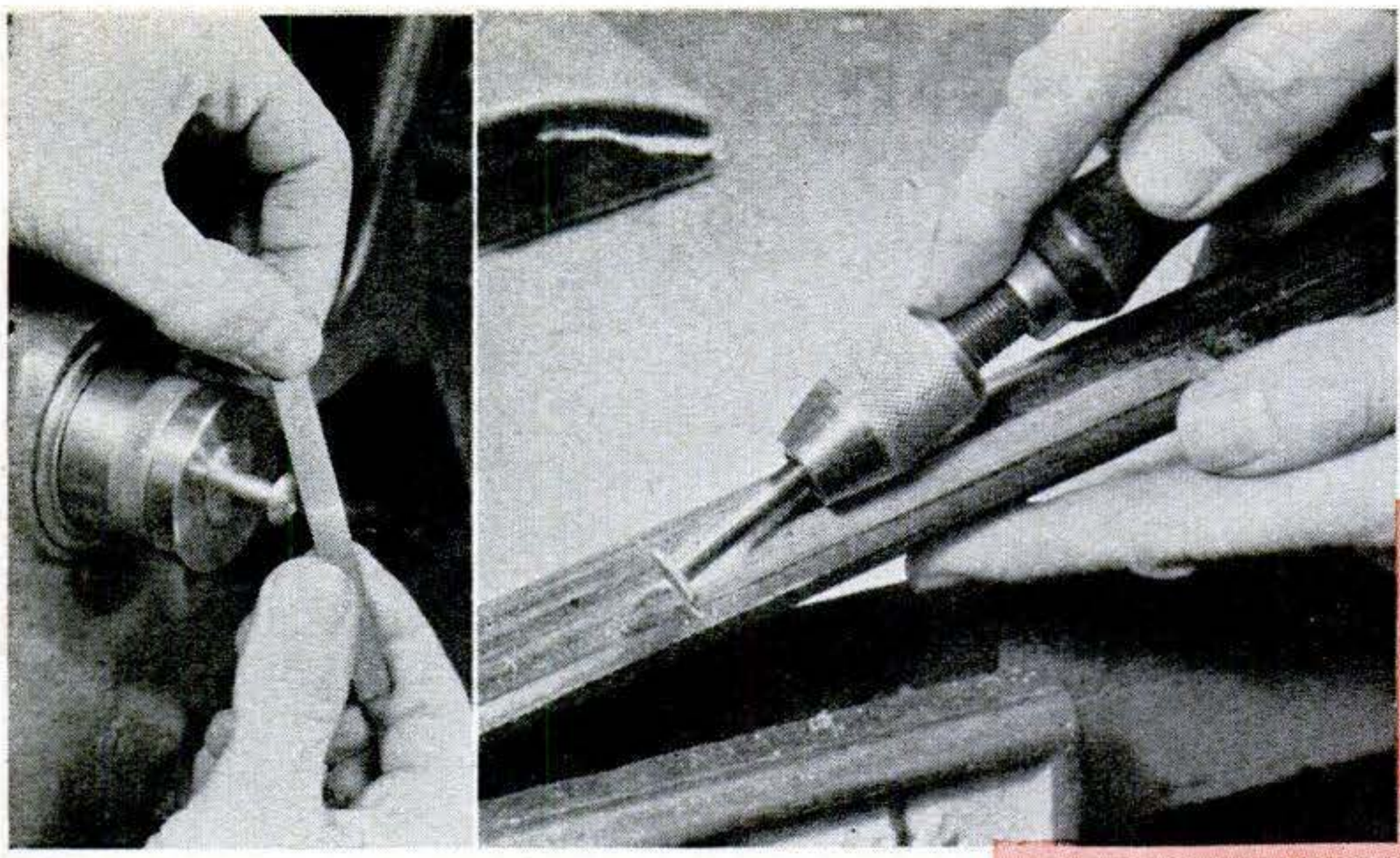
EASTMAN KODAK COMPANY

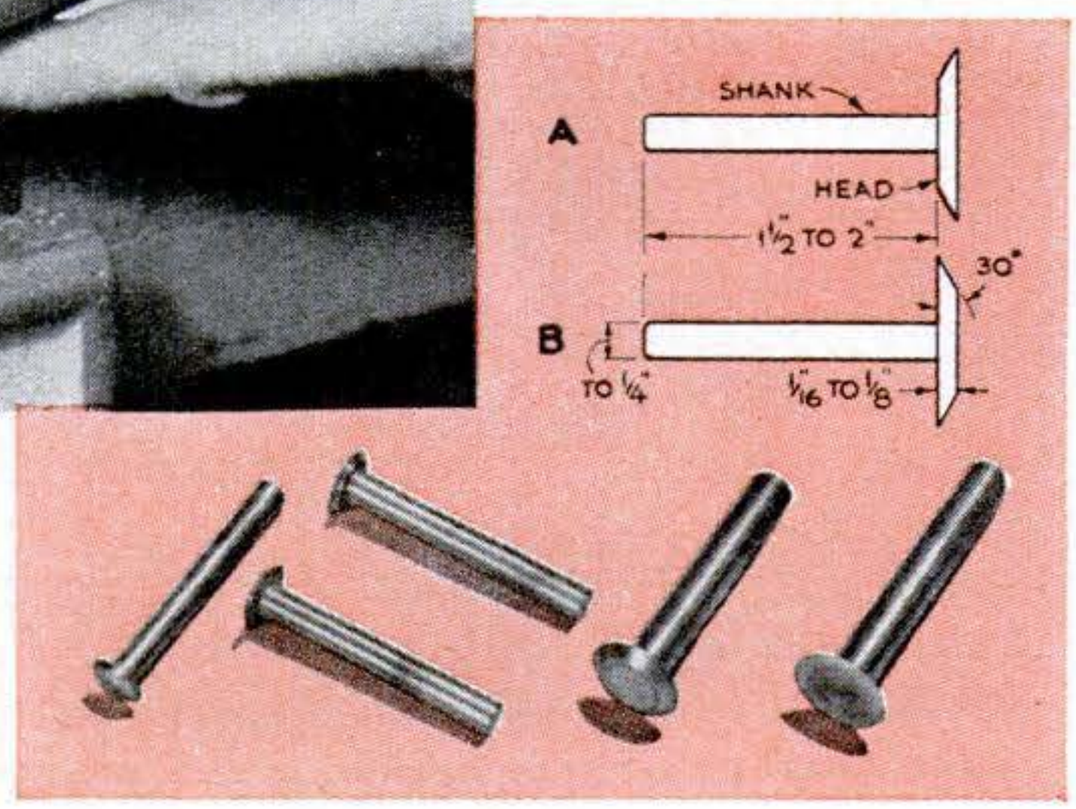
Rochester 4, N. Y.

Kodak
TRADE-MARK

Copyrighted material

NEW Shop Ideas



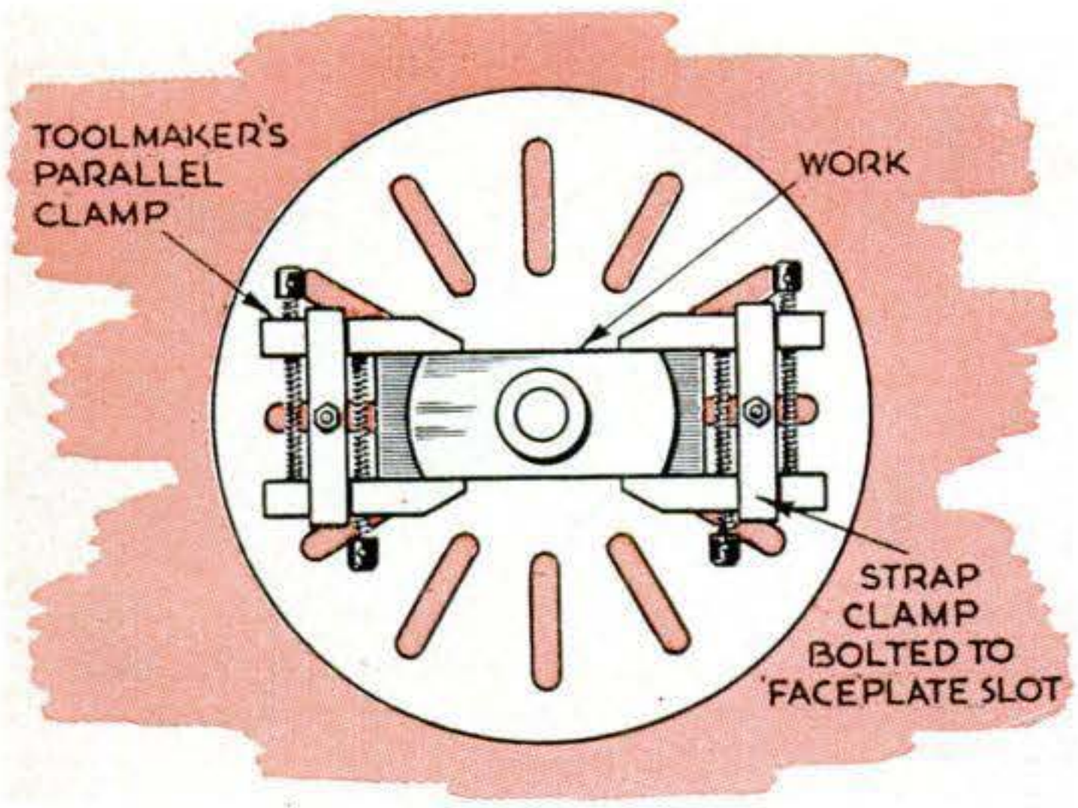


Round Scrapers Do Odd Jobs. With these circular scrapers you can remove paint from moldings, smooth or enlarge holes in soft materials, make half-round grooves in wood, carve wood or plastic, or even, by rolling the tool like a rotary knife, neatly trim cloth or paper.

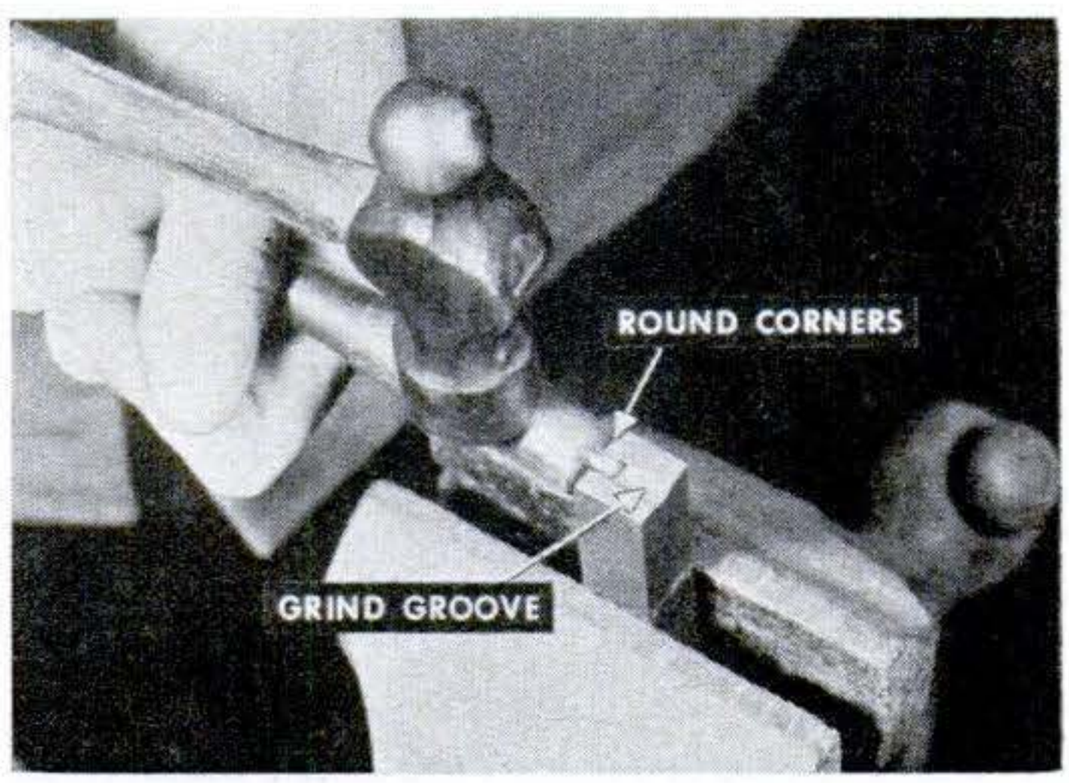
To make one, chuck a piece of drill rod the diameter of the desired scraper head and turn a 2″ shank to fit the handle the scraper will be used in. Cut off about ⅛″ back of the shoulder so formed. Reverse in the lathe, face true, and with the compound rest form a 30° bevel on the inside or the outside of the scraper head. The shape shown at *A* in the drawing is best for pushing, while that at *B* is preferable where the tool is to be pulled or drawn.

Use a file and then a fine abrasive stone to sharpen the edge, as at the left above. Heat cherry-red and quench. Temper by heating until a polished area turns light yellow. Cool in air.

A pin vise or chuck handle, as in the photo, holds scrapers interchangeably.—*Walter E. Burton, Akron.*



Mounting Faceplate Work. When work is to be faced right across, ordinary clamps or straps may run afoul of the tool. A convenient way to mount such pieces is with two parallel clamps. Screw these tightly on the ends of the stock, well back from the working face. Hold them on the faceplate with strap clamps placed across their jaws as shown in the drawing above.



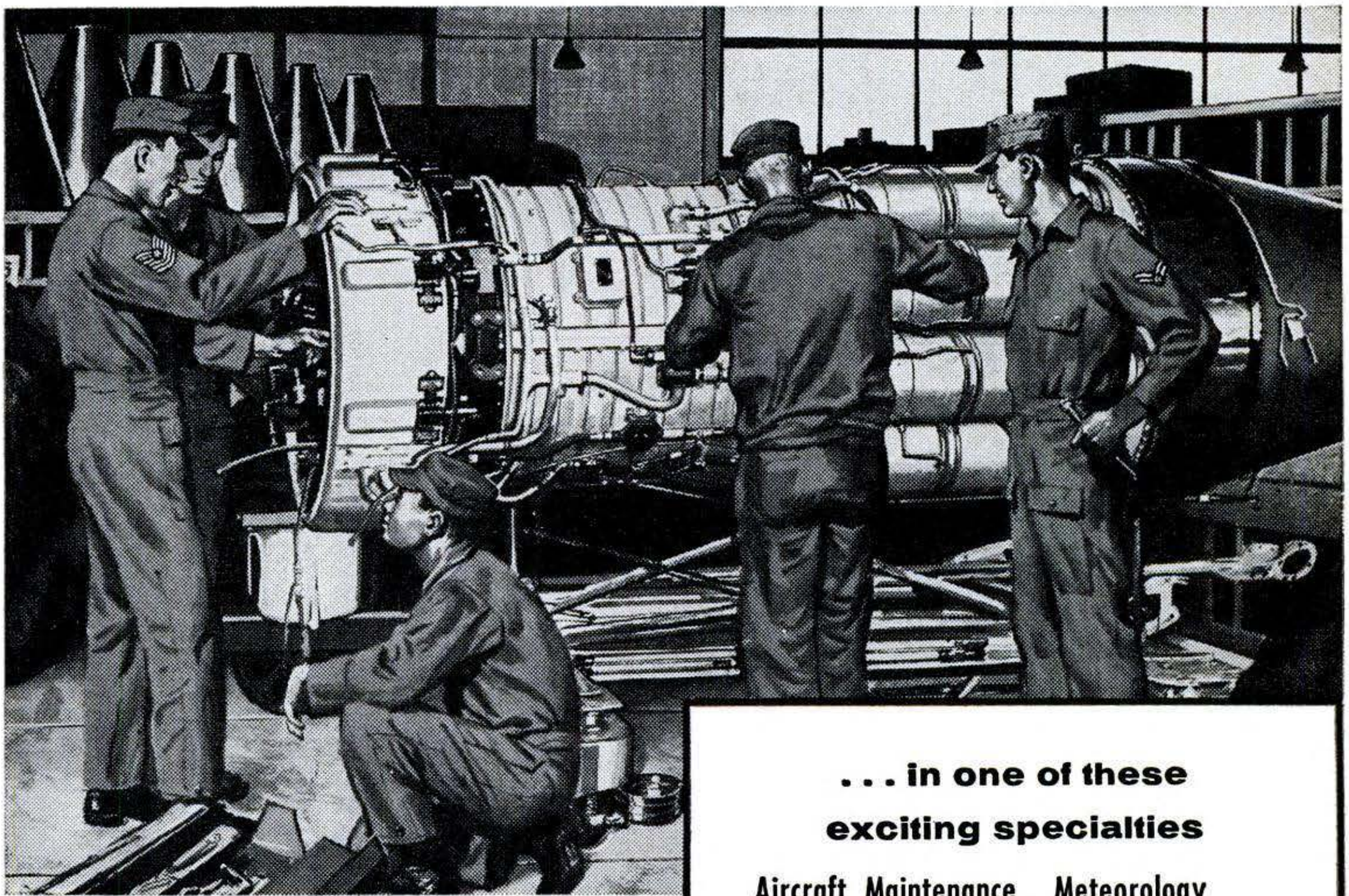
Tool Cuts Parting Pips. A parting tool may leave a small pip on the cutoff. The simple tool above will quickly and cleanly remove such pips from one or many pieces.

Grind a shallow radius across the end of a high-speed lathe tool. Dub off the corners as shown. Lay the pip in the groove and tap the work with a hammer. Use a soft hammer if the finish is important.

 Please turn to page 240 for more shop tips

Copyrighted material

You can train with the U. S. Air Force



Are you interested in engines, electronics, radio, or other technical specialties? If so, you belong in the U. S. Air Force! As an Airman, you may have the opportunity to learn from the ground up, and become a specialist in anything from Turbo-jet mechanics to Radar or Electronics. You'll train with young men, men who will be quick to appreciate your skills and aptitudes.

You'll earn good pay and have unlimited opportunities for adventure and travel. What's more, you'll be assuring yourself of a good future . . . a future in which the training you may receive in the U. S. Air Force will pay you huge dividends for the rest of your life.

You'll go places—faster on the young man's team

. . . in one of these exciting specialties

Aircraft Maintenance	Meteorology
Air Traffic Control	Photography
Atomic Weapons	Photomapping
Communications	Radar
Construction	Rocket Propulsion
Guided Missiles	Supply

Transportation

STUDENTS! Graduate before you enlist

Personnel Procurement Division M-2-PS-1
AFPTR-P-4, U. S. Air Force,
Washington 25, D. C.

Please send me more information on my opportunity as an Airman in the U. S. Air Force

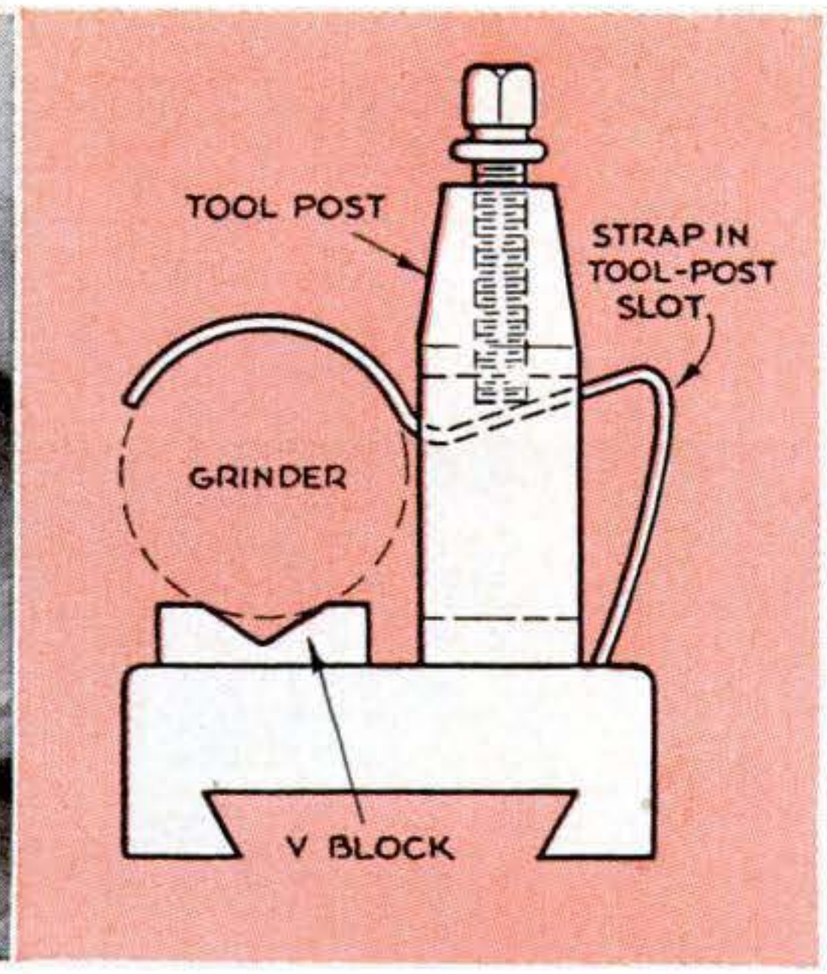
Name.....Age.....

Address .....

City.....Zone.....State.....

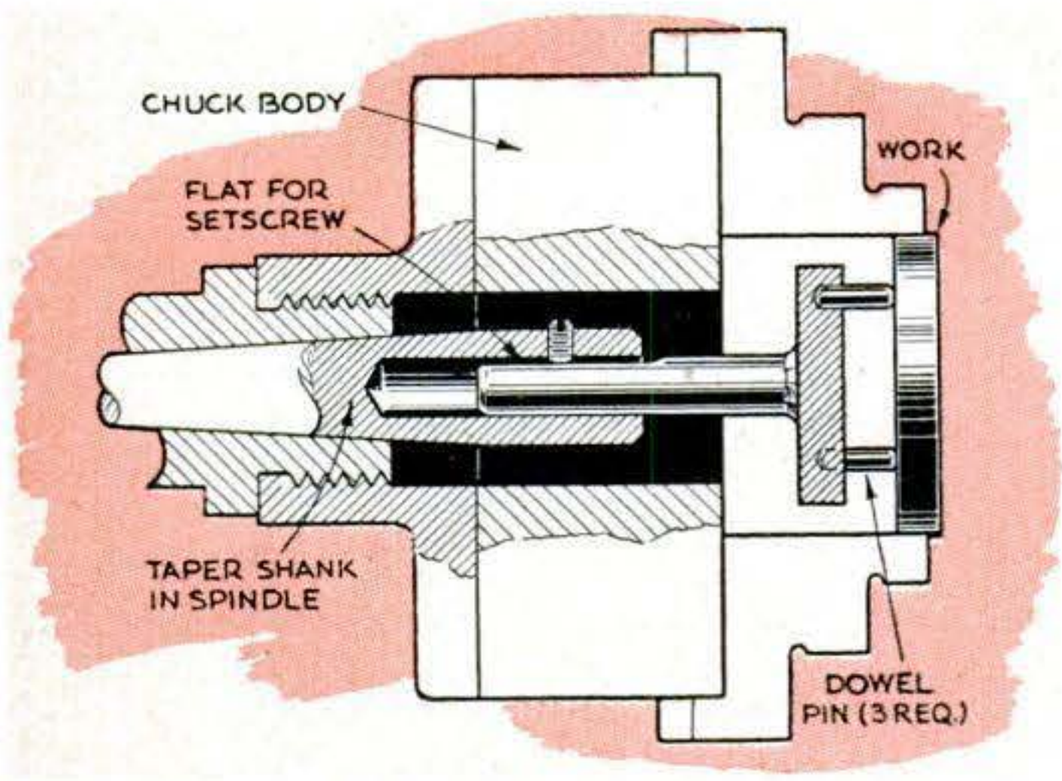
Copyrighted material

MORE SHOP TIPS



Quick Tool-Post Grinder. My problem was to cut some beryllium—a very brittle metal that would crumble under ordinary lathe tools. To do so, I rigged a small hand grinder on the carriage. The same setup will do any light grinding job.

Mounting was a simple matter. A piece of strip brass was shaped to the grinder housing and then formed to go through the tool-post slot and bear on the compound rest. A V block held the grinder at center height.—*John Henry Tavian, Redlands, Calif.*



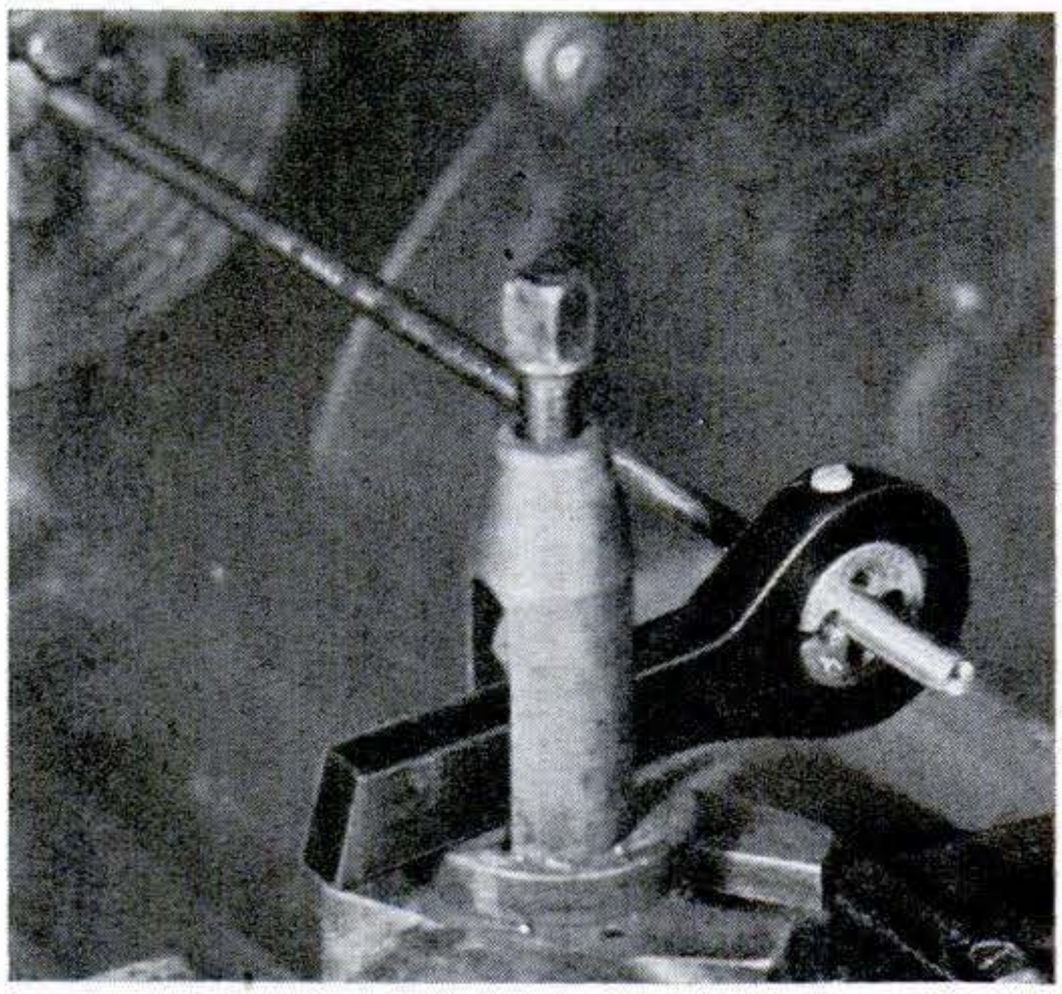
Stop Trues Thin Work. Light stock cannot be faced fully across in the steps of the chuck jaws. Held in the straight jaws, it may not run true, or if it does, it may cock as soon as the cut begins.

This spindle stop holds the back of the work square, keeps it from shifting under heavy cuts, and can be used to locate repeat work accurately. It also permits drilling or boring to be done.

Weld or shrink a disk onto a short piece of drill rod. Drill holes 120° apart in the face and press in hardened dowel pins. Drill and bore a taper shank to a snug sliding fit for the shaft of the stop, and tap for a setscrew. Lock the stop in it; then grind the ends of the three dowel pins square in the lathe. Hold work firmly against the pins while tightening the jaws.—*H. J. Gerber, Stillwater, Okla.*

Nonstop Die Holder. With this tool-post die holder, you can run threads of any length on stock fed through the spindle—several feet long, if you remove the tailstock. Make it from steel, brass or aluminum to suit your dies. Drill and tap a hole in the top for a setscrew.

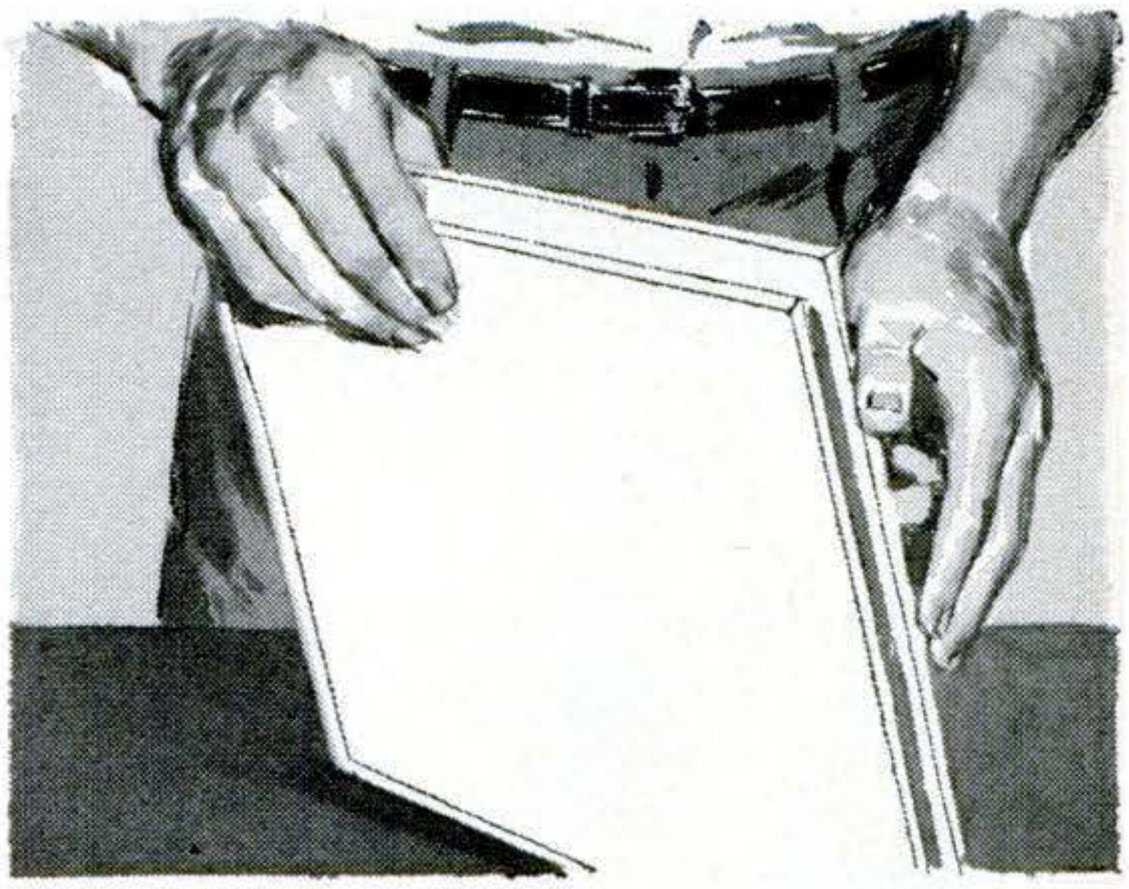
Mount the holder at 90° to the ways. Then push the tail center up into it, adjusting the cross feed to bring the die on center. Lubricate the work and run the carriage up to it by hand. Once threading, the die will probably feed itself, but give fine threads an assist with the handwheel. Reverse the spindle to back the die off.—*Phil McCafferty, Stanwood, Iowa.*



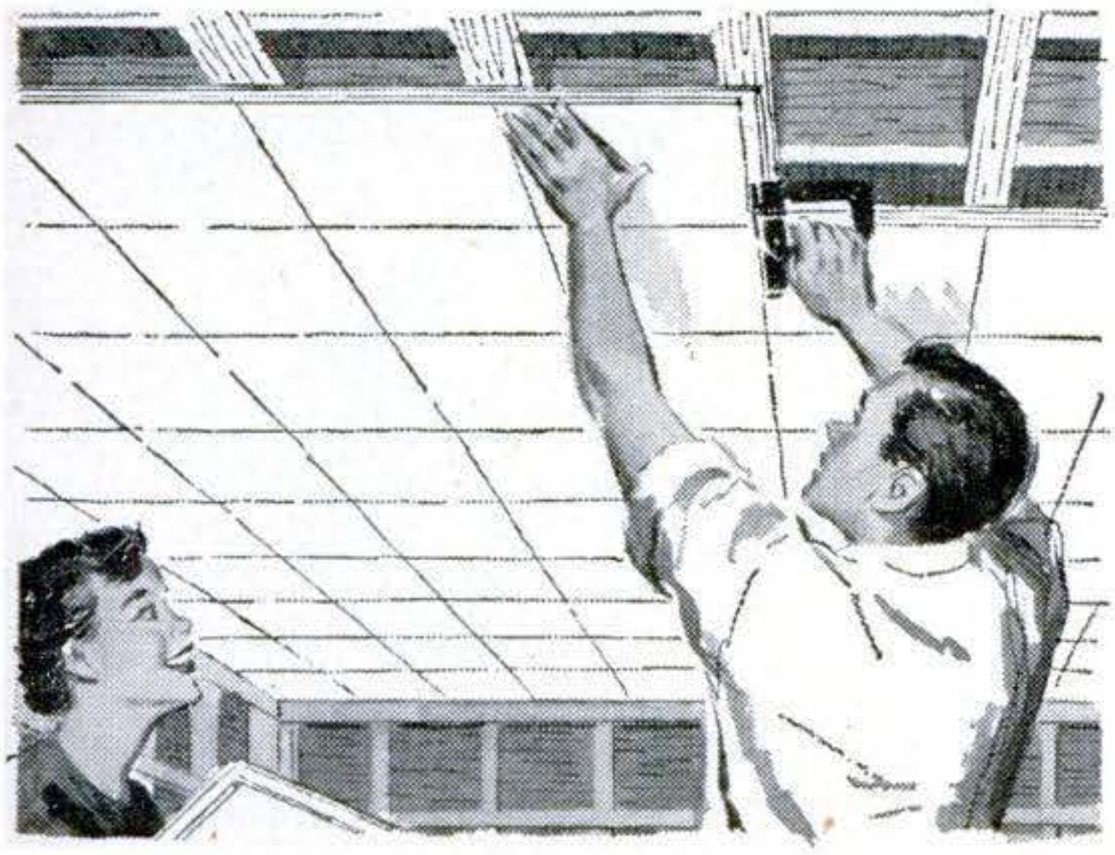
Copyrighted material

Add an extra room to your home —easily, economically

1. Do it yourself with Armstrong Temlok® Tile and Plank. Finish off unused space in the attic, basement, garage, or enclosed porch quickly with these attractive wood fiber building materials. Start by nailing up 1" x 3" wood furring strips at right angles to all framing members.



2. The Lok-Bevel* joint on both Tile and Plank has an extra wide nailing flange for quick installation. This special joint hides all nails or staples, assures neat joint lines, helps you do a really professional looking job. With Temlok Tile, you can choose a smooth or a noise-absorbing perforated surface.



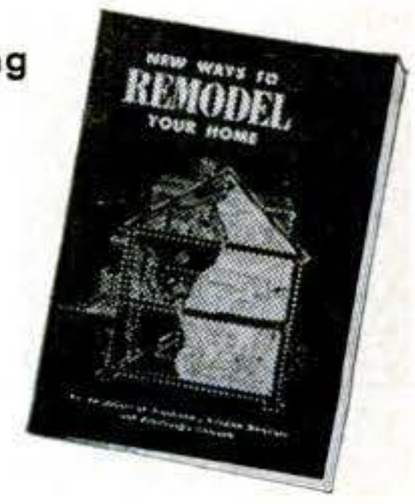
3. Temlok goes up fast by either nailing or stapling. Use staples with ½" legs or 1¼" 3d box nails. Four nails or staples should be used for each 12" x 12" or 16" x 16" Temlok Tile. Finish the walls with Temlok Plank. Both Tile and Plank build, insulate, and decorate in one application.

4. No painting needed. Temlok is handsomely finished at the factory. There's practically no mess or waste—once Temlok is installed, the job is done. Add a few decorative touches and you've got that extra living space in the form of a game room, workshop, or bedroom . . . and at low cost.

See your lumber dealer now for price, size, and color details on Temlok Tile and Plank and information on other Armstrong building products.

Send for free booklet, "New Ways to Remodel Your Home." Write Armstrong Cork Company, 3705 Washington Avenue, Lancaster, Pennsylvania.

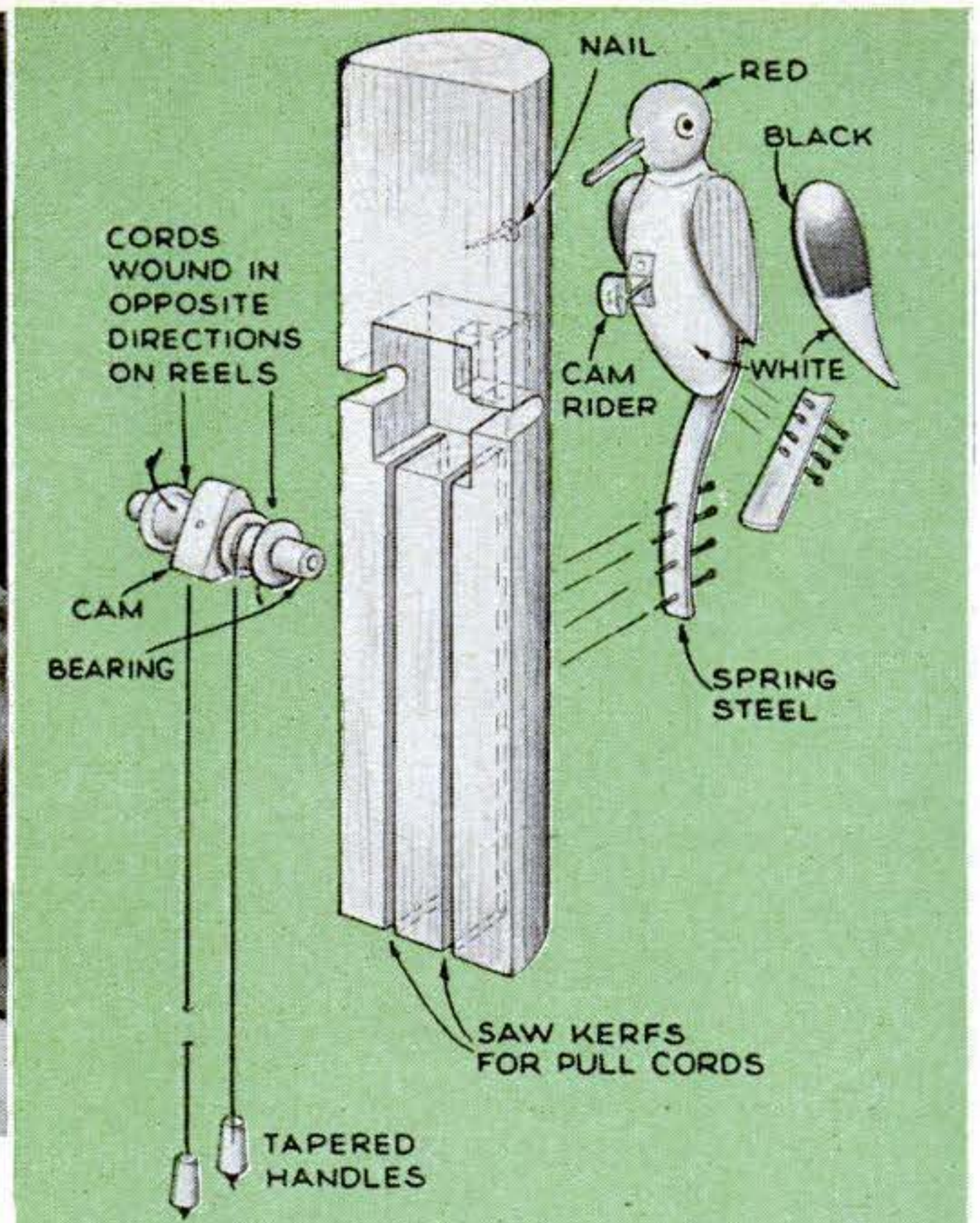
*** Trade-Mark**

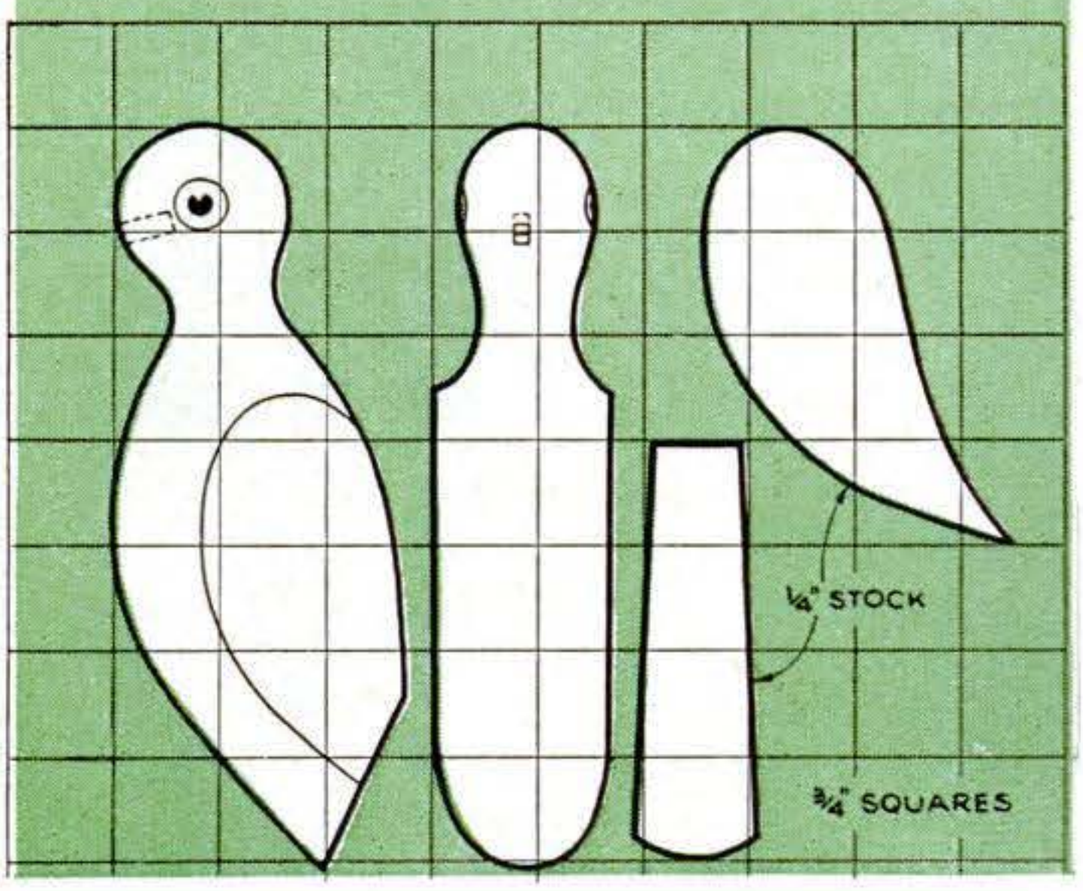


Armstrong TEMLOK

Cushiontone® • M-67® Monowall® • Hardboards • Insulating Wool • Counter-top Cement

Copyrighted material





Woodpecker Knocks When Callers Come

What tyke would use a doorbell with this saucy bird at hand?

WHEN guests pull one of the cords on this novel door knocker a cam revolves, alternately pushing the woodpecker back on a spring and letting him snap forward for a series of sharp raps. Meanwhile, a second cord winds up.

Use a half-section of any log as a mount. Remove the bark and carve a pocket in the flat side for the cam. Extend a smaller channel through the log for the cam rider attached to the bird's breast. Cut slots for camshaft bearings (brass tubing), and saw parallel channels for the pull cords.

Cut the triangular cam from hardwood and wedge it onto a drill-rod shaft. Turn two drums from dowels and mount them on either side of the cam. Attach pull cords to the drums and give one of them six turns. Slip the bearings over the shaft and mount the assembly in the log.

After carving the woodpecker body and wings, glue the wings in place, insert a cut nail for a bill, and attach a cam rider shaped from brass stock to the bird's breast.

A clock-spring tail holds the woodpecker on the log. Fasten the spring to the bird with nails driven through the tail block and on through holes punched in the spring.

Now, cement and tack a strip of birch bark to the log. Before the cement sets, cut a hole for the cam rider and a slot to take the lower end of the spring, which is slipped between the bark and the wood. Attach the spring at a height that lets the cam engage the rider.—*J. M. Finn, Pittstown, N.J.*

Copyrighted material

Her kitchen will always look NEW

She works here...

you can make it easier for her!

Her kitchen is really her workshop. She takes pride in it, too—*when it's easy to clean up* after food preparation or dishwashing.

You can easily give her modern work-surfaces that clean with a damp cloth. St. Regis Panelyte doesn't stain, scratch or grow shabby. Refreshing in color and design.

Ideal for bathroom walls, vanity tops, too. Simple hand tools and Panelyte Contact Adhesive are all you need to install St. Regis Panelyte yourself. And you make worthwhile savings. Ask your building materials or floor coverings dealer for the large 4′ x 10′ sheets in one-tenth-inch or one-sixteenth-inch thicknesses.

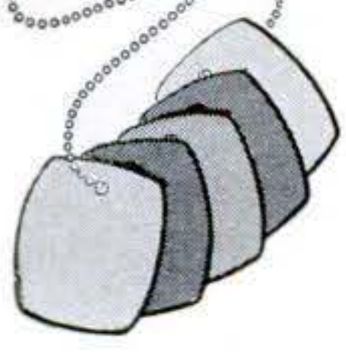
Ask also for the free "Do-It-Yourself" practical instruction booklet. *Or get the coupon off today.*

SR

ST. REGIS

PANELYTE

THE MODERN SURFACE



She can have her choice of many accepted designs, each in several colors.

St. Regis Panelyte is manufactured by St. Regis Paper Company, one of America's largest paper manufacturers, with resources ranging from raw materials in its own forest preserves to modern mills and plants and its own nation-wide distribution.

Send for FREE "Do-It-Yourself" Booklet

PS-555

St. Regis Paper Company, Panelyte Division
230 Park Avenue, New York 17, N. Y.

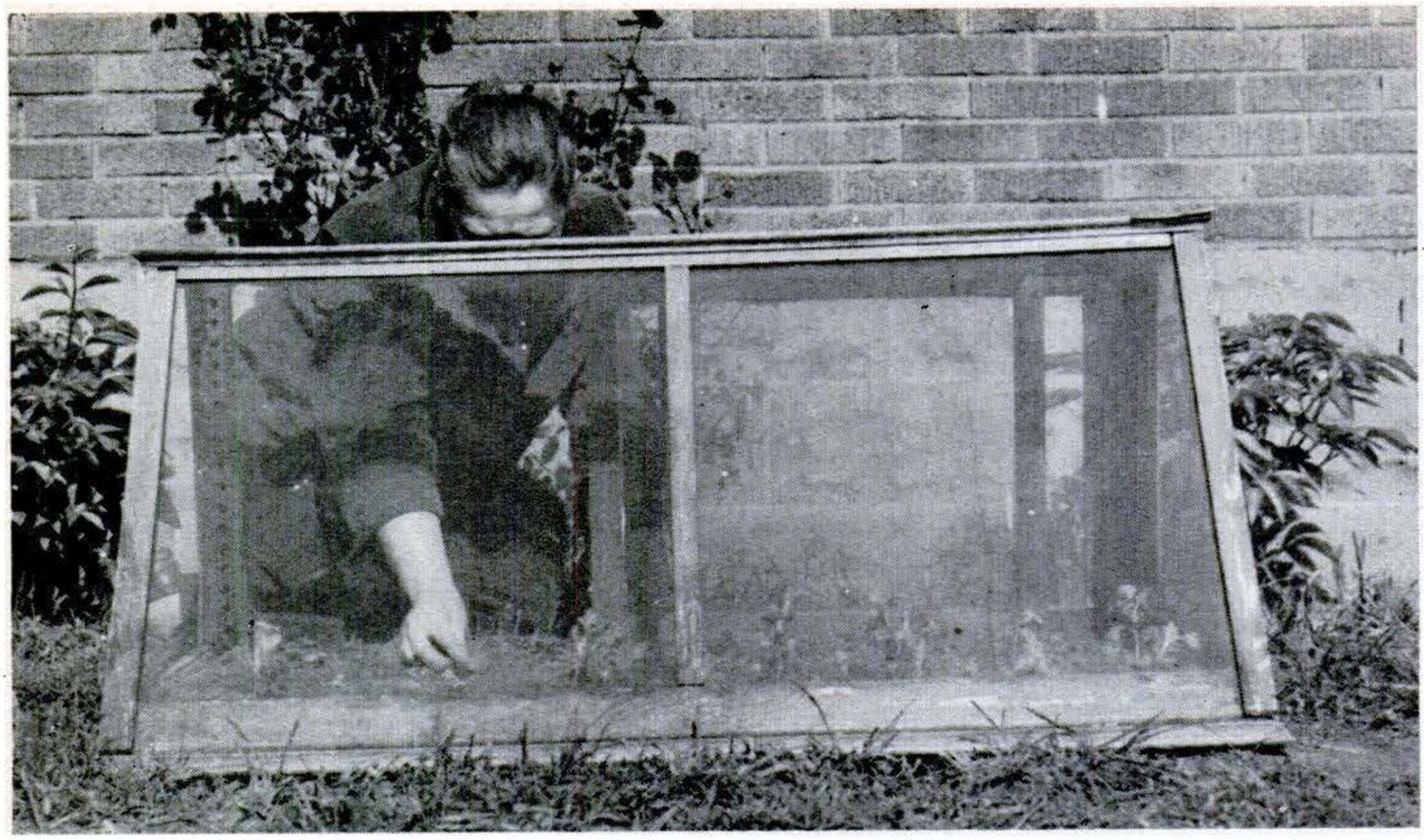
Send FREE instruction booklet to:

Name .....

Street .....

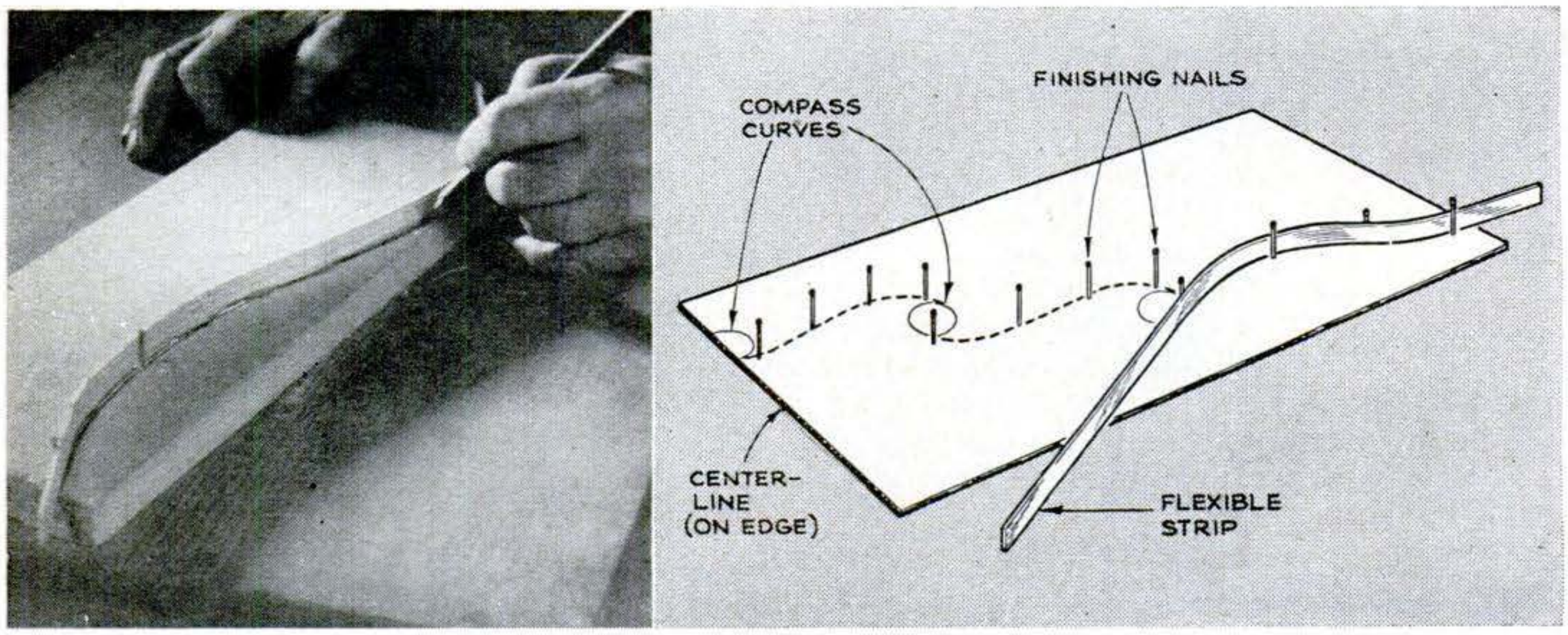
City .....*Zone* .....*State* .....

Copyrighted material



Glass Candy Case Provides Cold Frame for Early Garden

AN OLD candy case from a salvage yard is a ready-made cold frame for plant growing. The plants get light from all sides, and you can easily reach them for cultivating by just sliding aside the doors in the rear.—*John Krill, North Lima, Ohio.*



Flexible Wood Strip Helps in Laying Out Pleasing Contours

IF DRAWING freehand curves doesn't come easy, try laying out furniture-top or valance contours this way:

On cardboard half the length of the desired design, mark out with a compass any parts that are to have a true radius. With the cardboard on a wooden surface, drive finishing nails part way in at both ends and at points along the line where the curve is to change direction.

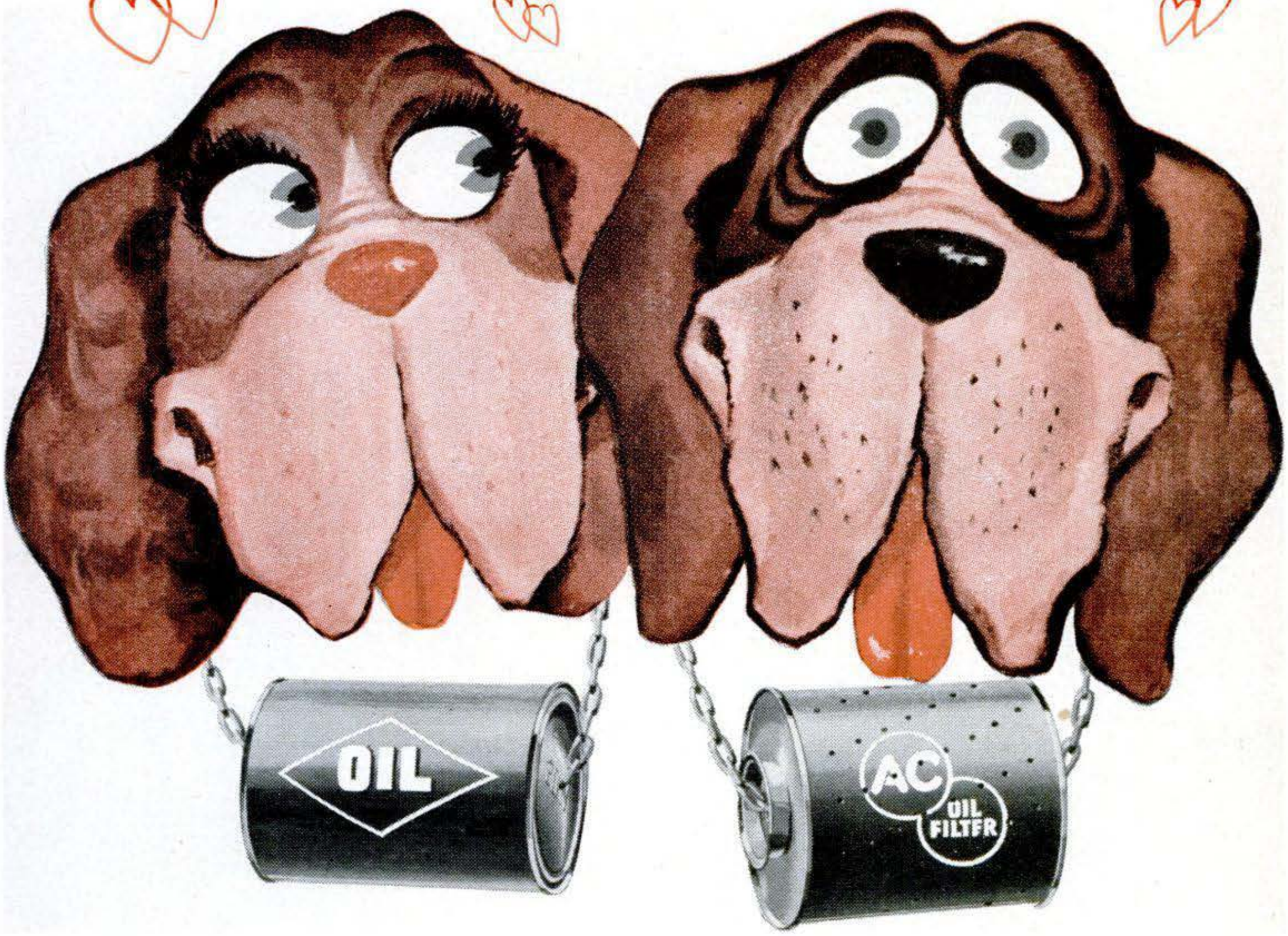
Now bend a strip of thin, straight-grained wood to shape over the projecting nails, flexing it here and there until it takes on a pleasing curve and touches the drawn compass curves. Then trace along the strip with a pencil.

If the curve is broken up, as in the drawing above, treat each part separately, using the strip to lay out a contour on each section in turn.

Cut out the profile so obtained and trace around it on the work to lay out half the design. Flip it over for the other half.—*J. M. Finn, Pittstown, N. J.*

Copyrighted material

Ah-h-h Spring!



Time to CHANGE OIL and OIL FILTER!

Buds are budding, leaves are leafing, spring is springing. Folks everywhere know the first robin is a sign that it's time to change oil and oil filter, too.

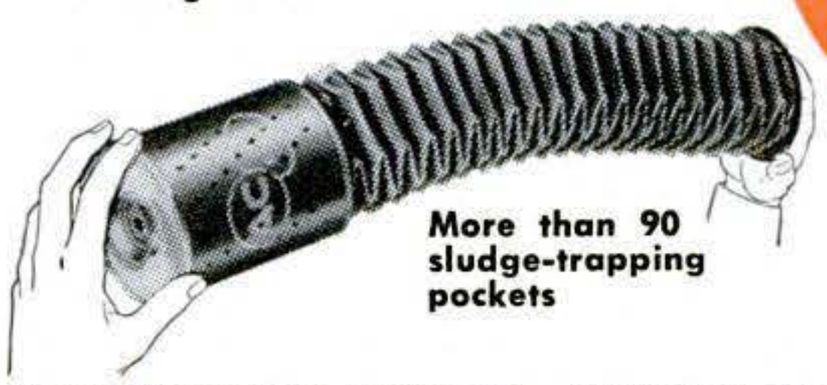
An AC Filter keeps oil free from harmful dirt, protects your car's engine from the damage dirt can do. In fact, an AC Filter takes out particles as small as 1/100,000 of an inch . . . *without removing the detergents from heavy-duty oils!*

So, change to clean oil now, and *keep* it clean with a new AC Oil Filter. Change your AC Filter every 5,000 miles. That's the best way to keep "spring" in your engine all year long—and for years longer!

RESCUE your car with . . .

AC OIL FILTERS

Watch BIG TOWN NBC-TV



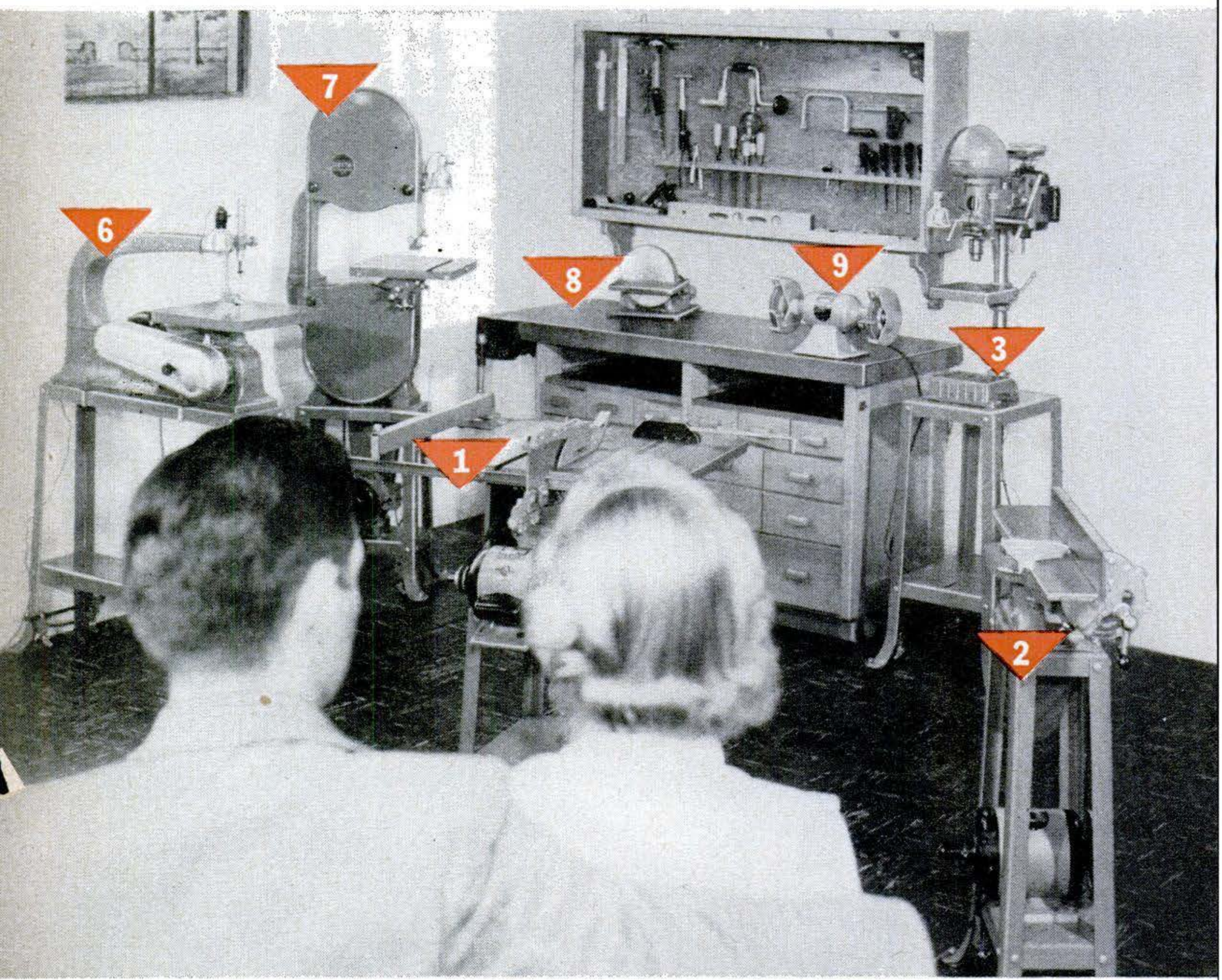
GM GENERAL MOTORS

AC SPARK PLUG DIVISION • GENERAL MOTORS CORPORATION

THE ONLY FACTORY-APPROVED FILTER FOR CADILLAC • BUICK • OLDSMOBILE • PONTIAC • CHEVROLET • GMC

Copyrighted material

CHOOSE THE DELTA TOOLS



CHECK THE DELTA TOOLS YOU NEED TO COMPLETE

1 DELTA 8" Tilting Arbor Saw

☐ Most widely used home workshop saw in the world. Famous Delta 10" Unisaw also available.

2 DELTA Deluxe 4" Jointer

☐ Puts a professional finish on stock up to 4" wide. New Delta 6" *Long Bed* Jointer also available.

3 DELTA 11" Drill Press

☐ Drills, mortises, routs, carves, shapes, and grinds with precision and speed. New Delta 14" Drill Press also available.

4 DELTA High Speed Shaper

☐ Cuts smoothly and rapidly at all possible angles to the grain. Interchangeable spindles for wide variety of cutters. Cabinet model also available.

5 DELTA 12" Wood Lathe

☐ Finest home workshop lathe built. Turns wood, plastic, and even light metals. 11" model also available.

6 DELTA 24" Scroll Saw

☐ For fast, accurate, intricate curve cutting. Speeds up to 1700 smooth cutting strokes per minute. 16" model also availbale.

7 DELTA 14" Band Saw

☐ Most rugged and accurate band saw of its size. Cuts up to 6" hardwood smoothly, curve or straight line. Delta 10" Band Saw also available.

8 DELTA 8½" Disk Sander

☐ Sands, drills, grinds, buffs —puts professional finish on straight, curved, or angular surfaces.

9 DELTA General Purpose Bench Grinder

☐ Most rugged, powerful, fast, and smooth running home workshop grinder built today! Used in many industrial shops.

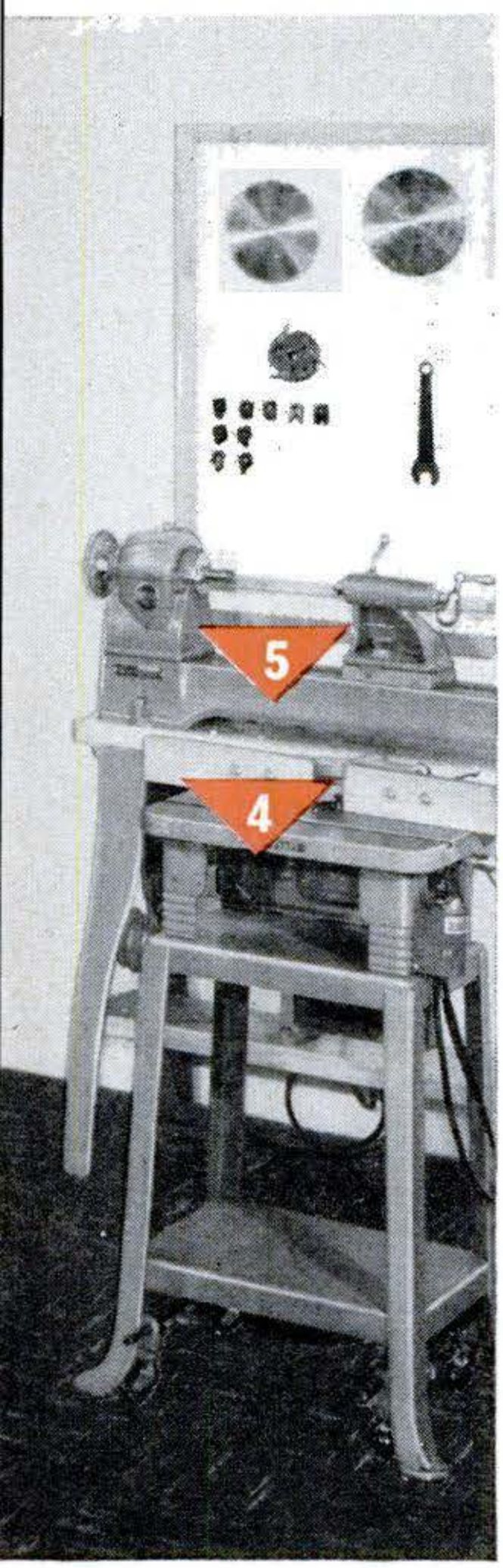
Copyrighted material

YOU'D LIKE TO WIN

IN DELTA USERS'

"Finest Home Workshop" Contest

There's still time to get into Delta's big contest to discover the *best* home workshop use of the *finest* tools made today. If you own three or more Rockwell-built Delta tools (the DeltaShop counts as *four*) you have as good a chance as anyone to win the first prize of $1000 worth of Delta Tools of your choice, or thirteen other valuable power tool prizes!



Delta Quality Makes The Difference

In the picture at the left are just a few of the many Delta Tools from which you can choose if you win. And if you're like most real home craftsmen, you know there just aren't any finer tools made. Delta is the power tool pioneer, with years of experience in building precision tools to meet the exacting standards of industry. In fact, many of the tools from which you can choose as a winner are the *same* quality tools used in wood and metal working plants throughout the United States.

Get Started NOW

The big Delta contest closes July 15th—there's still plenty of time to enter, and *win*. The Official Entry Form (which must accompany your entry) gives you the complete contest rules, the complete list of prizes, and tells exactly how to prepare your entry. Get yours from your Delta Dealer (he's listed under "TOOLS" or "MACHINERY" in your classified phone book), or send the coupon below.

YOUR SHOP

DELTA Accessories:

Delta matches the world's most complete line of fine power tools with the most complete line of accessories to make each Delta Tool even more versatile, more useful. Accessories also available as prizes to winners.

DELTA ROCKWELL

DELTA QUALITY POWER TOOLS

Another Product by **ROCKWELL**

ROCKWELL

Delta Power Tool Division, Rockwell Mfg. Co.
504-E N. Lexington Ave., Pittsburgh 8, Pa.

☐ Please send me an Official Entry Form for the Delta Users' "Finest Home Workshop" Contest.

☐ Please send latest Delta Homecraft Catalog (10¢ enclosed).

☐ Please send Delta "B" Catalog, showing Delta's larger units, such as 6" jointer, 24" scroll saw, 14" band saw, etc. (10¢ enclosed).

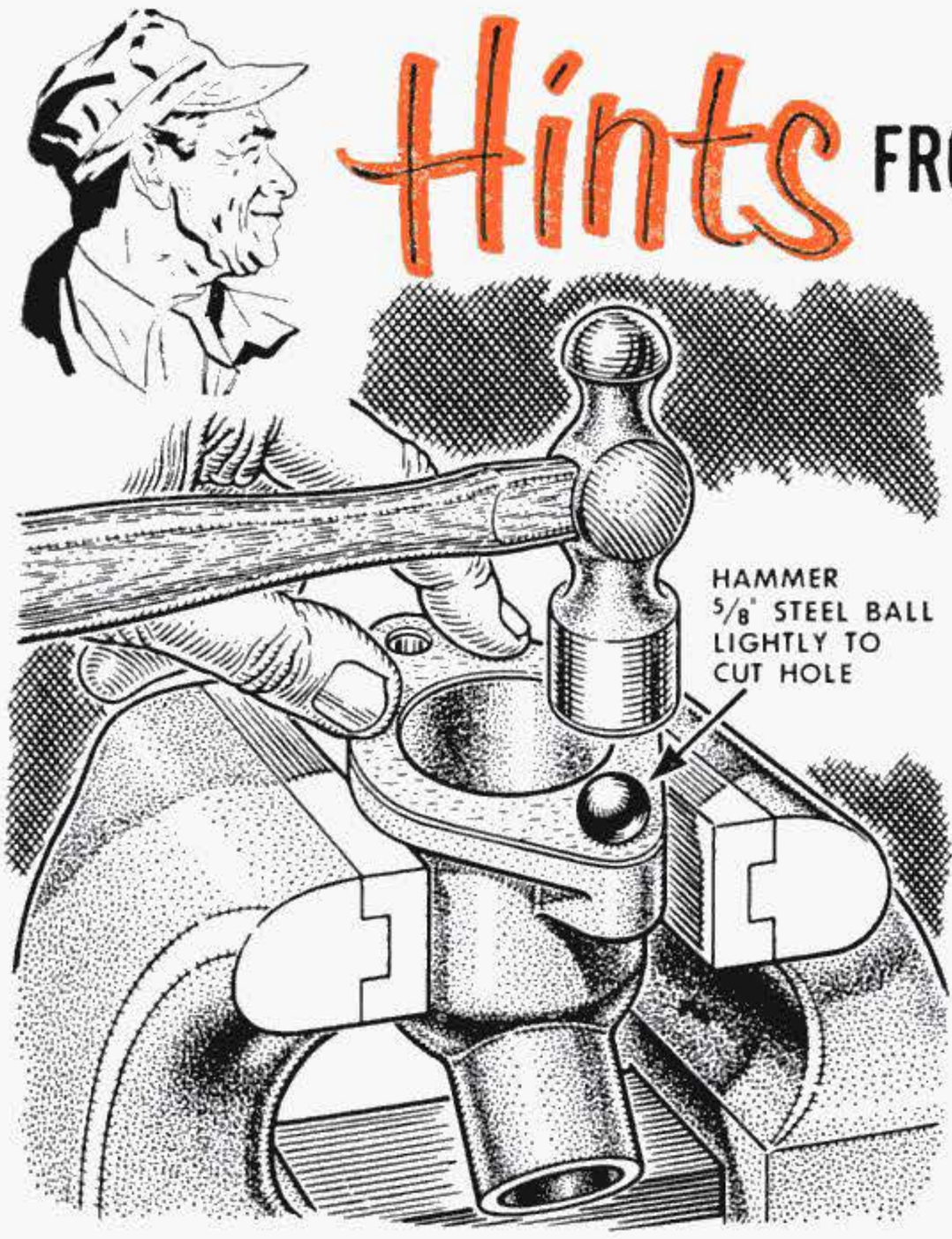
Name_____

Address_____

City_____ County_____ State_____

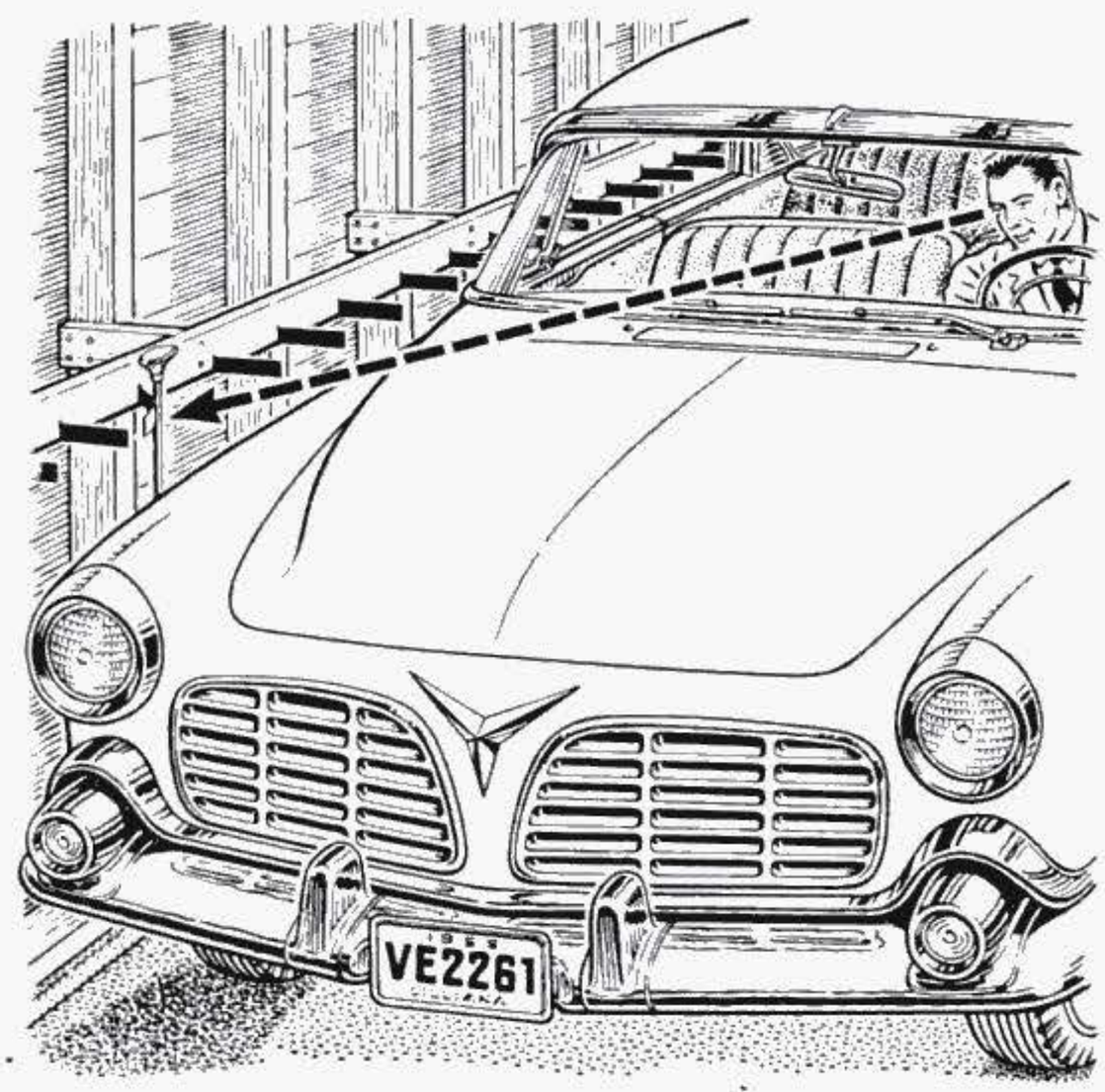
Copyrighted material

Hints FROM THE MODEL GARAGE

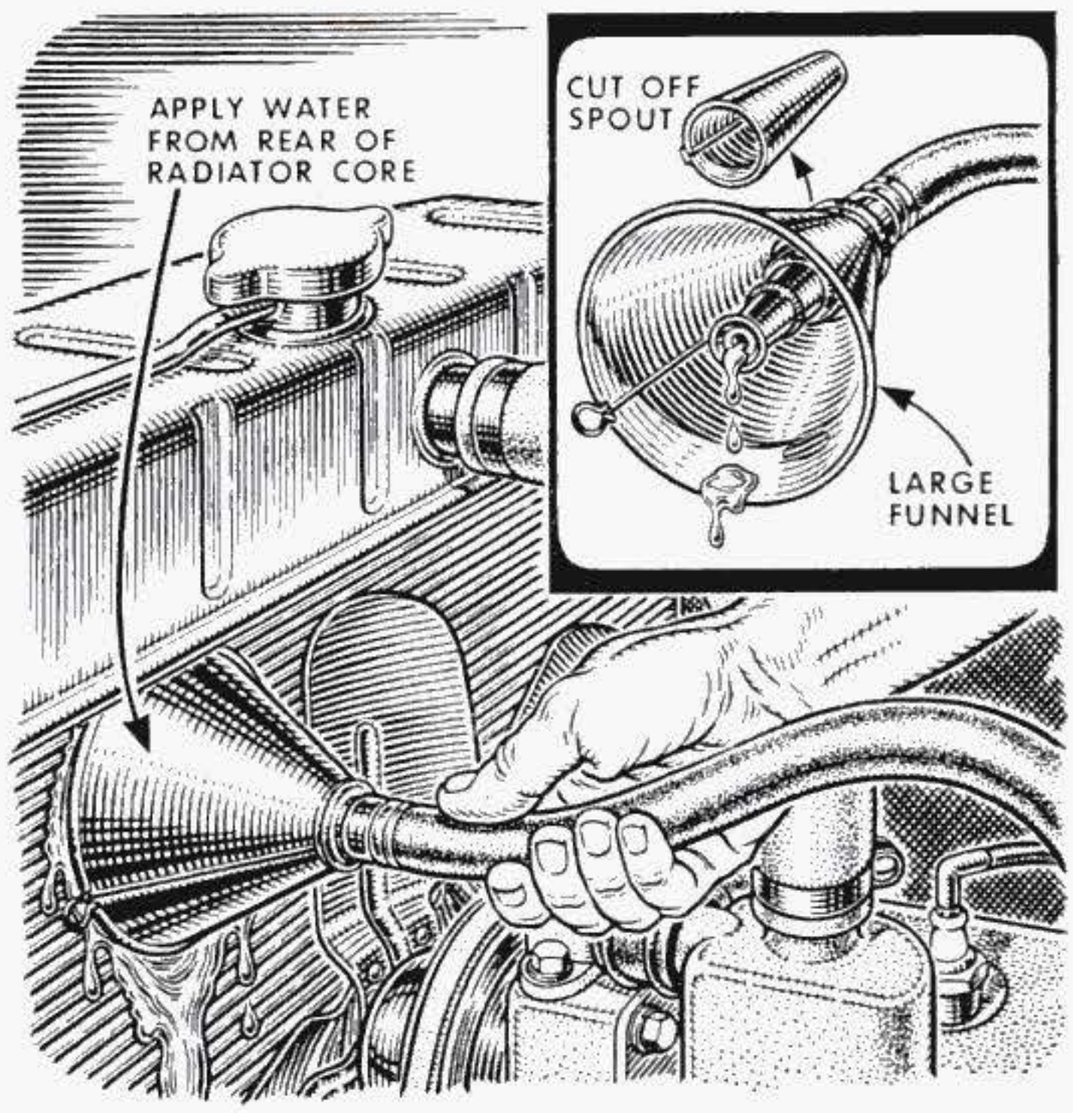


In making a gasket, you can locate and cut bolt holes in one step with a steel ball slightly larger than the hole. Cut the gasket to shape and place it on one surface to be joined. Tapping the ball lightly over the hole makes a clean cut.

A roadside reflector can be made from a discarded electric heater of the reflector type by covering the concave surface with luminous paint or strips of reflector tape. It makes a neater job if you first remove the wiring and old heater element.



Installing a guide rail on the opposite garage wall helps you leave room to get out on the driver's side. When the fender guide on your car just touches flexible fingers cut to length from an inner tube, there's room to open the other door, too. Insert fingers in saw slots in a one-by-three.



Cleaning radiator-core openings to free them of collected insects can be done without wetting the ignition. Cut off the spout of a funnel and adapt the top part to fit over the hose nozzle. Splashing water will be deflected back to the core and run harmlessly to the ground.

Please turn to page 250 for more auto hints

Here's what HERTZ RENT A CAR SYSTEM found out about Car-Plate –

Easiest way to put on the toughest kind of wax

EVEN AFTER 3 MONTHS– CAN YOU PICK THE CAR-PLATE WAX SIDE FROM THE HARD-RUB AUTO WAX JOB?

HERTZ picked 20 of its rental cars in cities across the U. S. One side of each was waxed with liquid Car-Plate, the other with one of three well-known paste waxes.

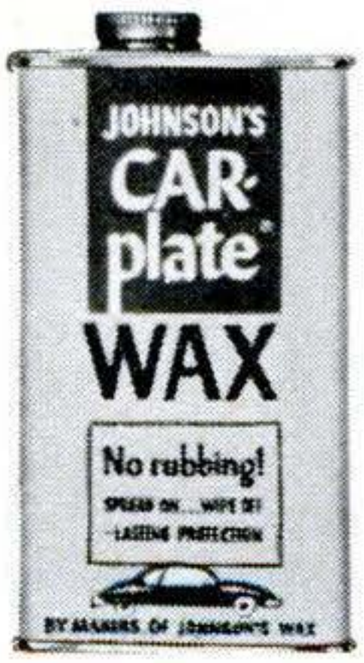
HERTZ FOUND: *Car-Plate is far faster, easier to apply than any paste auto wax.*

After months on the road, the sides were compared for wear and shine.

HERTZ FOUND: *Car-Plate lasts as long as the most durable paste auto wax.*

The reason: All the Car-Plate wax *stays on* your car—you don't rub wax *off* as when polishing paste wax. The Hertz test car shown here was driven 3 months, then simply washed and photographed. If you can't tell the Car-Plate side (right) from the paste side, why waste hours rubbing? Next time wax with Car-Plate!

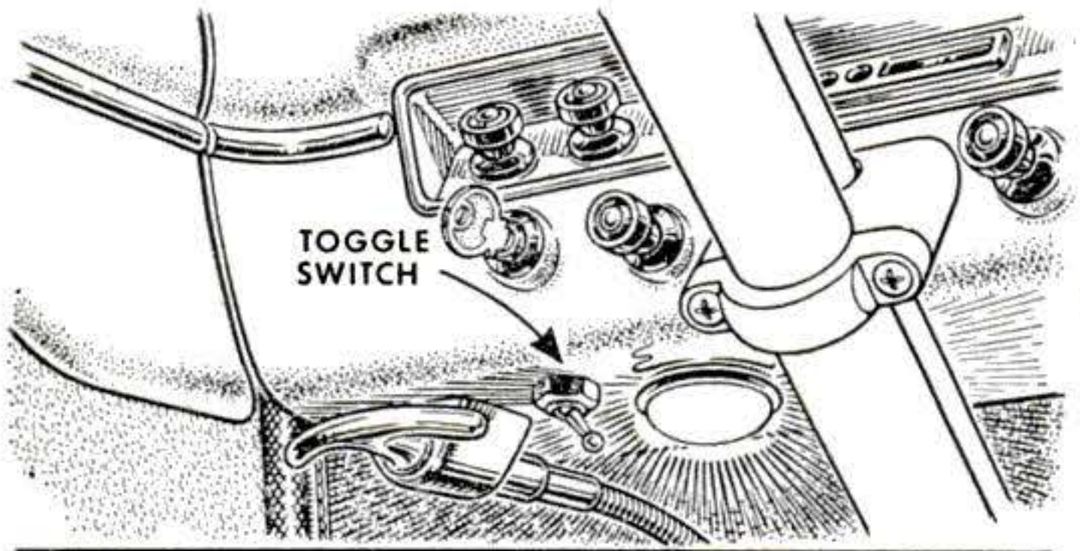
Before waxing use Car-Plate Cleaner. Wax will bond perfectly in a brilliant, long-lasting finish.

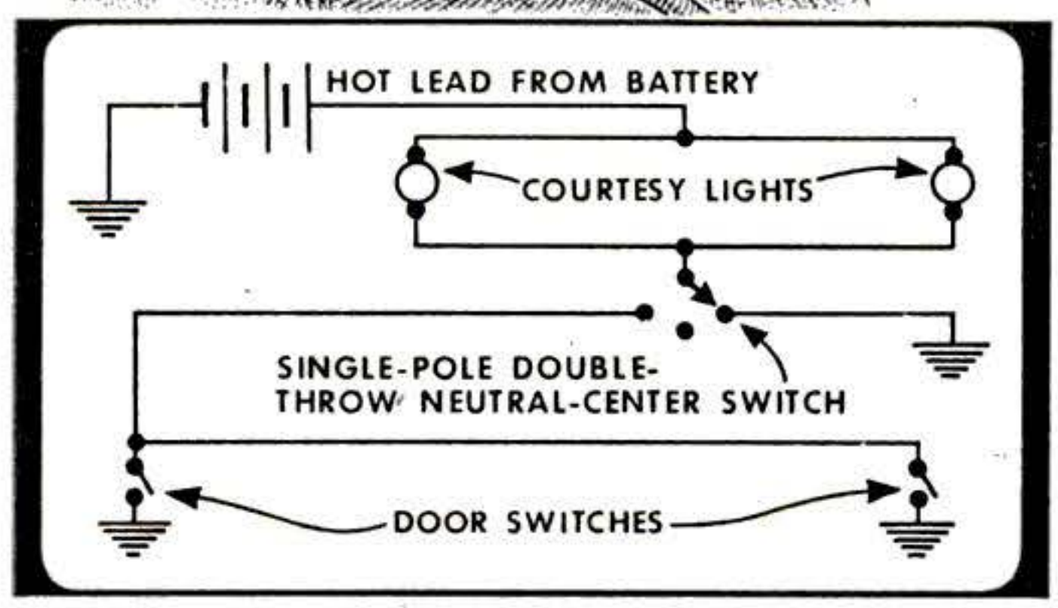


JOHNSON'S CAR-PLATE WAX

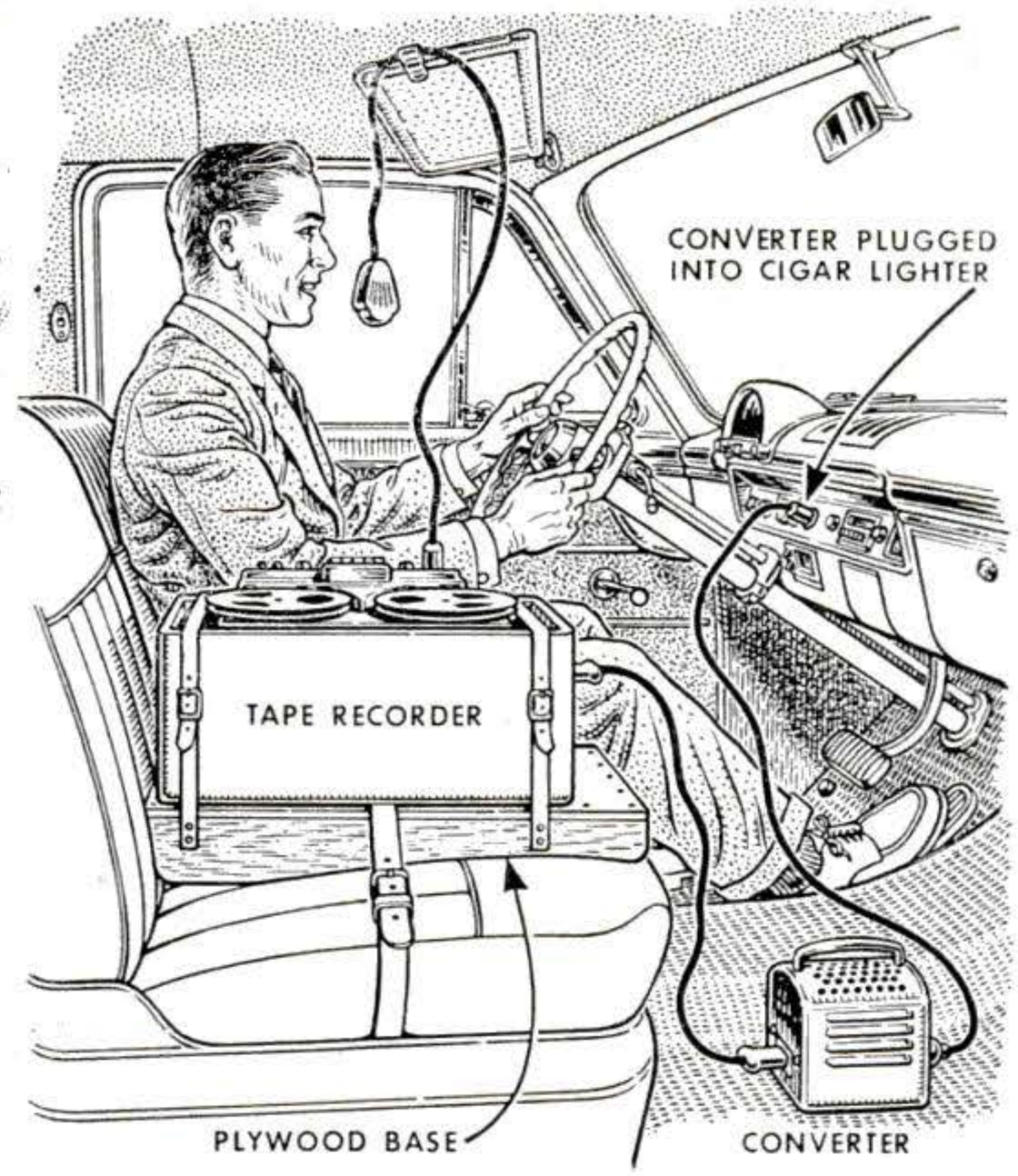
Copyrighted material

MORE Hints from the Model Garage

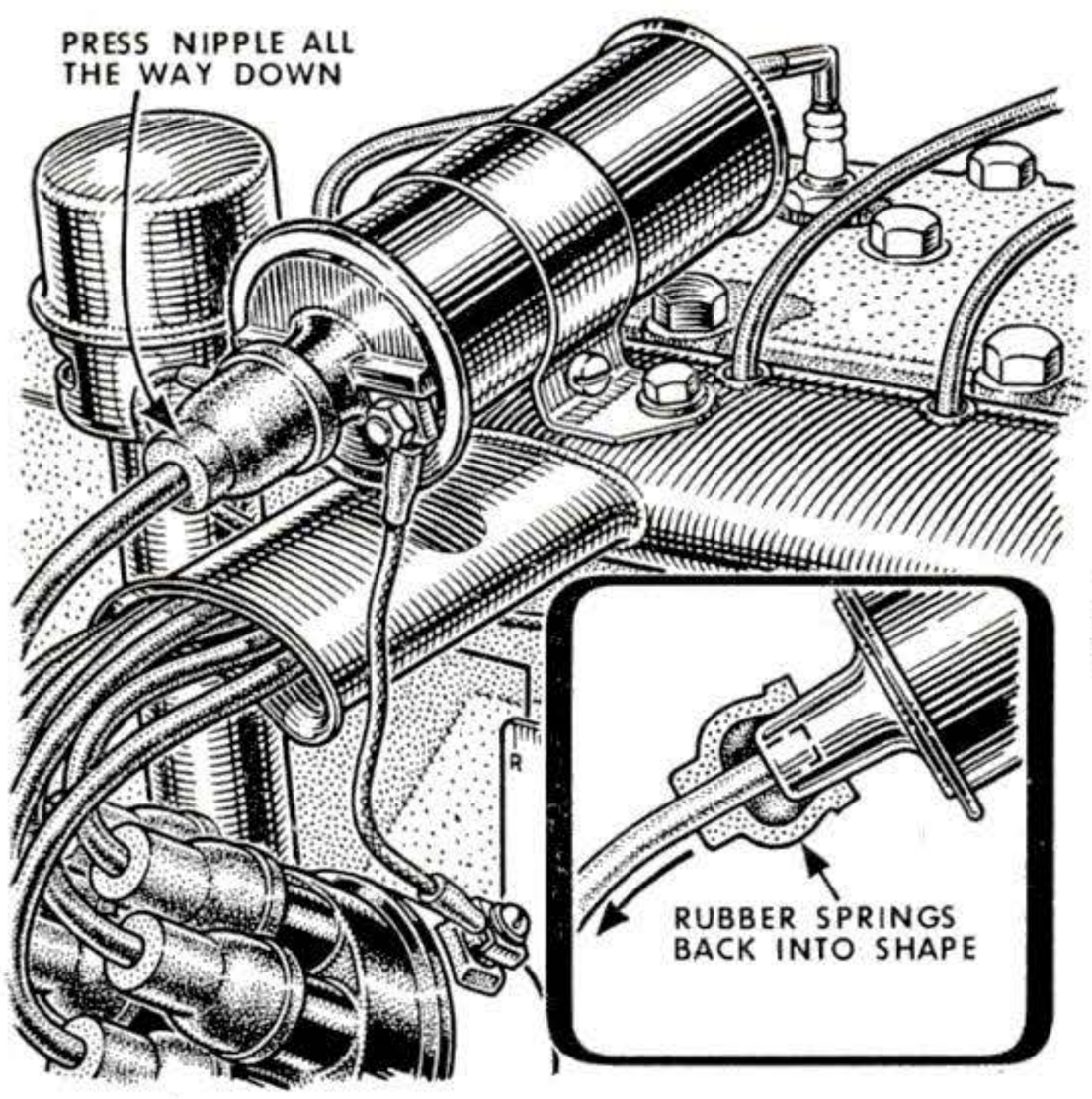




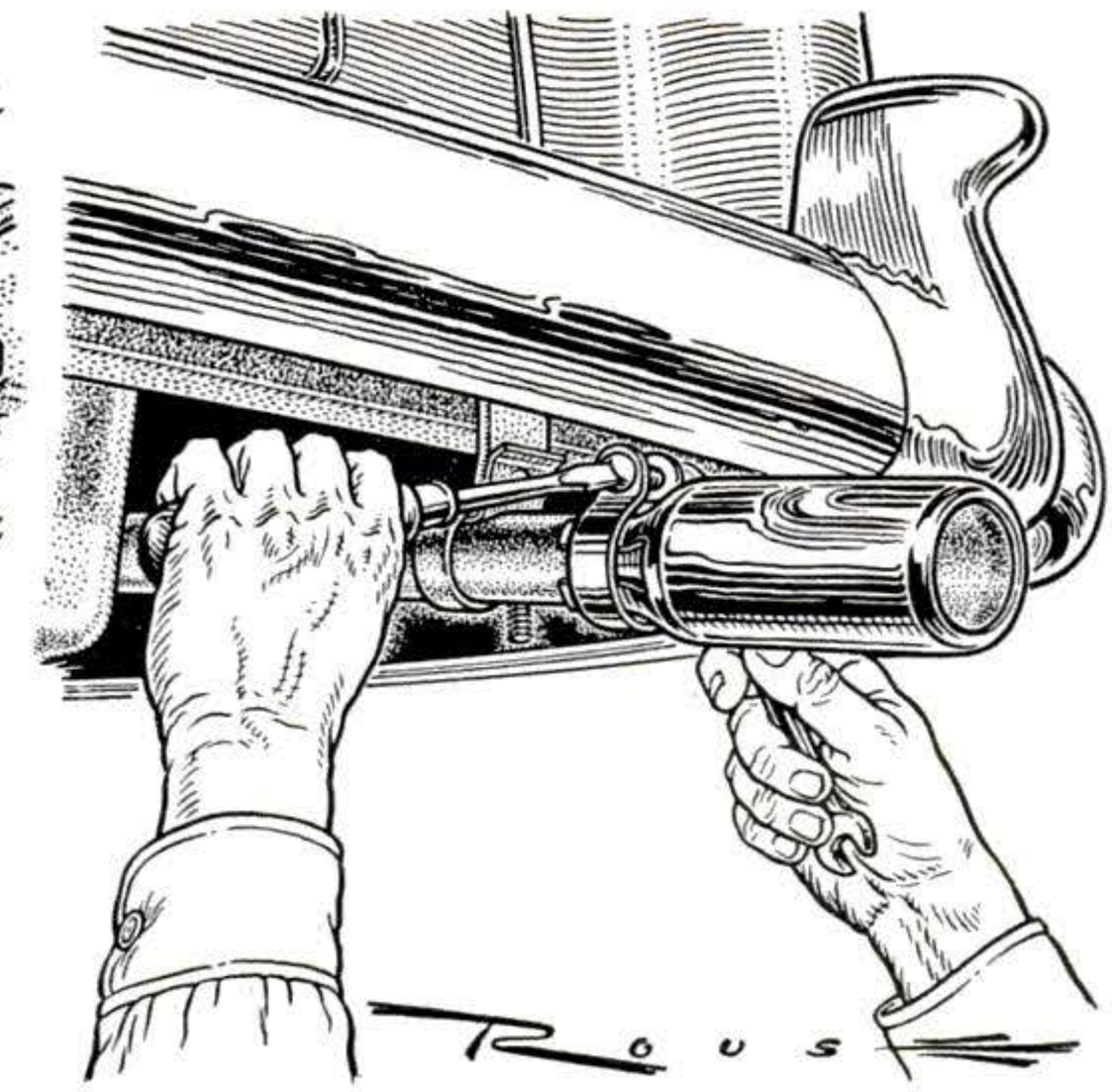
Courtesy lights or dome lights can be controlled with a three-way toggle switch in the circuit. On one side the switch gives you light while the doors are open; on the other the light remains on whether the doors are open or shut. The center position is at "off" at all times.



An office-in-the-car is easy to contrive with a tape recorder mounted on the front seat. To keep the recorder level, strap it to a plywood base having sides curved to the contour of the seat. It's a business-trip convenience to permit report dictation while held up in traffic.



When rubber boots are used on ignition-coil or distributor high-tension wires, you should push them all the way down on the tower. Otherwise the tendency of rubber to spring back into shape may force the wire out and break the connection.



An exhaust deflector clamped on the end of the tailpipe is not just for looks. It is a good way to keep exhaust gases from discoloring your bumper chrome. Bushings are available for clamping a deflector to a small-diameter or oval tailpipe.

Copyrighted material

WANT THE COOLEST SMOKING MIXTURE YOUR PIPE EVER HAD?

WHY A MILLION MEN HAVE SWITCHED TO HOLIDAY

Only Holiday gives you this custom blend for Mildness

Yes, five famous tobaccos skillfully blended into a mixture of unequalled flavor, aroma and mildness. These fine tobaccos selected from all parts of the world, are blended with a base of cool-smoking white burley to make Holiday America's finest pipe mixture. Try a pipeful . . . enjoy its coolness, flavor and aroma . . . and see for yourself why more and more men who smoke mixtures are switching to Holiday as a steady smoke.

Only Holiday has this Wrap-Around Pack!

No other pocket tin or pack will pass the "Goldfish Bowl" test. Try it yourself—it's absolute proof that the Holiday pouch is sealed air-and-water tight, guaranteeing you a fresher, cooler-smoking tobacco.

HOLIDAY

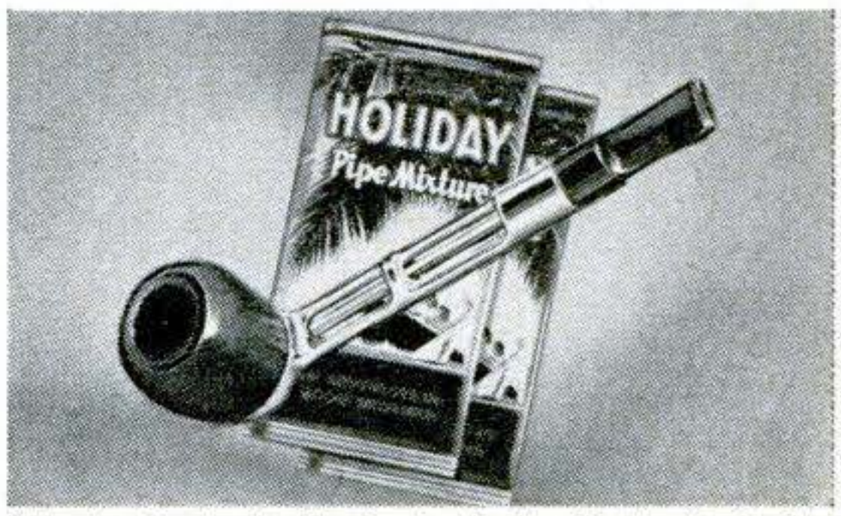
SMELLS GOOD—SMOKES GOOD

AMERICA'S FINEST PIPE MIXTURE!

IF YOU PREFER A BLEND OF STRAIGHT BURLEY

Try Edgeworth—choice cool smoking white burley in the air-tight pouch. America's finest pipe tobacco.

SPECIAL OFFER $1.50



Get this new polished aluminum stem "Park Lane" pipe with interchangeable imported briar bowl and exclusive "*dri-dome*" which traps moisture to insure a dry, cool smoke—along with 2 full-sized pouches of Holiday Tobacco. If your dealer cannot supply you, use this handy order blank.

Name_____

Address_____

City_____ State_____

Mail with $1.50 to Park Lane, Larus & Brother Company, Inc., Richmond, Va.
Offer good only in the U.S.A. **PS-5**

Copyrighted material

[Continued from page 170]

less for me to install one of my batteries in the car. Doc might just be cunning enough *not* to leave a switch on at night —it wouldn't prove a thing. I've been over this car with a fine-tooth comb. There just isn't a short in it."

"It's got to be the battery then," Stan declared.

"I just can't believe that," Gus said. "Not when Williams has tried three different batteries."

GOING over the problem again, Gus could see no other alternatives: There was either a slow juice leak or Doc was deliberately killing the battery.

To get around this latter possibility, Gus arranged to have the car left at the Model Garage for several nights. Strangely enough, the battery held full charge now. This pointed a finger of suspicion squarely at Doc. Still, Gus couldn't believe it. Doc, he told himself, would be one to gallop a horse in the streets in protest, but he wouldn't stoop to take unfair advantage. With this thought firmly in mind, Gus went to work again on the big sedan.

He crawled under it like a badger, going over and checking everything he had done before. He polished and tightened terminal nuts, cleaned and tightened battery leads, spread and taped wires.

There seemed to be little to gain from road-testing the car, since it always went dead while parked at night. It had to be something, Gus thought, that Doc did to the car on one night, that he didn't do on another.

In desperation Gus disconnected the field lead wire from the voltage regulator and hooked an ammeter, which he knew he could trust for accuracy, between the hot terminal of the starter relay and the car's circuit. He'd drive the car now, Gus thought, and if the slightest short developed under road stress, he'd know it.

As Gus started out, the car interior was cold, so he snapped on the heater and defroster fans. Everything seemed to be working right, the generator doing its job, ammeter reading steady.

It was morning, and the sun soon began to work on the car's windows. Shortly the interior became too warm for comfort. His mind occupied, Gus leaned over and opened the cowl ventilator. Immediately the ammeter showed an extra six-ampere draw. That was queer, Gus thought. He closed the ventilator and the six-ampere draw went away. A gleam of satisfaction came to Gus's eyes.

"Maybe," he said aloud, "I've located something."

AT FIRST glance there seemed to be no way that the opening of the ventilator could produce juice drag on the circuit. The opened cowl ventilator shoved the defroster air hose against a hot lead on the firewall. But, Gus reasoned, what of it? That hose was made of rubber. It couldn't cause a short.

But minute inspection showed that there were stiffening wire windings in the air hose. A tiny spot of wear exposed a mere pinpoint of wire. This, when against the hot terminal, carried juice in the manner of a resistor, while limiting it to six volts. It wasn't enough to get the wire hot, but it *was* enough to kill a battery overnight.

If Doc left the ventilator open at night he got a dead battery. Closed, the battery stayed up.

"Just goes to show you," Gus told Doc, "how tough things can get in this business. A man might have missed that fouled-up ventilator forever. And you, Doc, at your age, should be ashamed of yourself, galloping around town like a mad hatter."

Doc puffed reflectively on his pipe.

"The old mare," he said, with a twinkle in his eye, "had more sense than this old fool. She didn't want to make that run. I'll go around and apologize to her—and to Roy Williams, too."

"That," Gus told him, smiling, "would be a darn good move, Doc." END

NEXT MONTH: Gus and the balky jeep.

Copyrighted material

Quiet...*as a tiger on the prowl!*

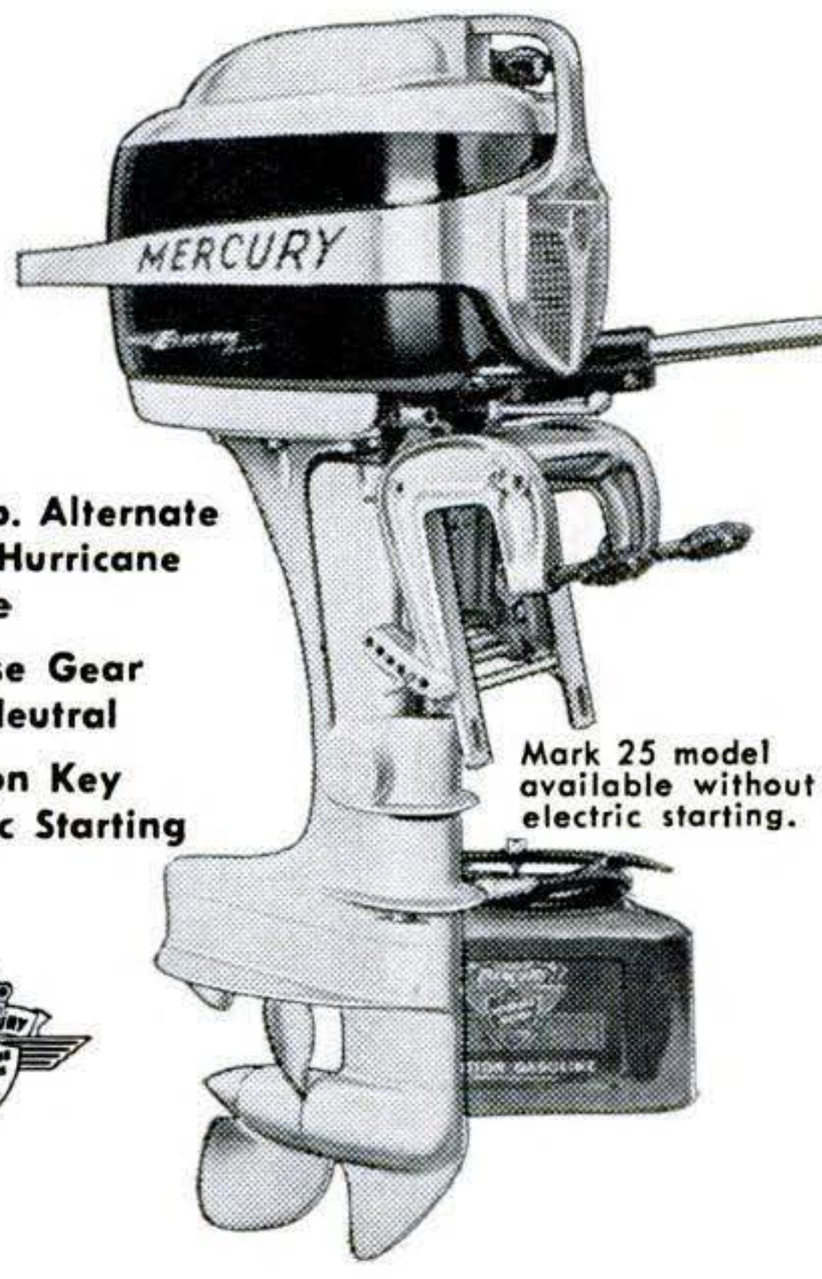
Complete Engine Silencing Makes the Difference!

Superior engineering and design have always made Mercurys quiet in comparison with other outboards . . . but the new Mark 25E sets new standards even for a Mercury! It's *super-silent!*

Complete engine soundproofing, not just intake and exhaust silencing, is yours with the Mark 25E, including a scientific sound absorber that blankets the entire powerhead, eliminating the need for power-restricting carburetor intake silencers. New Dyna-Float Suspension floats the engine on rubber, mounted in shear, to keep vibration away from your boat.

Here is the world's lightest, quietest, most compact electric starting outboard, with more performance than any 20 cubic inch outboard ever built! See your Mercury dealer — then "Go Quality — Buy Mercury!"

new KIEKHAEFER MERCURY mark 25E



18 h.p. Alternate Twin Hurricane Engine

Reverse Gear and Neutral

Ignition Key Electric Starting

Mark 25 model available without electric starting.

LATEST NEWS!
Available in variety of striking new 2-tone color combinations.

Write for FREE Illustrated catalog!

© 1955 KIEKHAEFER CORPORATION, Fond du Lac, Wis.

Features of Mercury motors are protected by issued or pending patents.

Copyrighted material

[*Continued from page 107*]

seldom has time enough for all these side shows. The center ring, where final assembly takes place, is a one-story building a couple of blocks long. Surprisingly, it is not a straight-line deal with bits moving in one end and cars driving out the other. Instead, the final line writhes around like a snake with a stomach-ache, wrapping itself about internal lines, splitting into branches and knotting into transfer points.

Let's imagine that, a few days ago, you ordered a red V-8 Hudson Hornet with air conditioning (live it up, boy!), and that I went for a green Rambler wagon with overdrive. Back in Scheduling, Al Pryse has performed his rites and the conveyors are loaded up to bring first your car and then mine to the final line. We walk to one end of the building and stop by an immense vista of tightly packed "Wash" bodies—shop talk for Wasp, Ambassador, Statesman, Hornet.

These bodies were hauled down from Milwaukee, six per truck, and shunted onto one of 16 body-storage conveyors, each 38 bodies long. They feed the Nash-Hudson part of the final line, acting as a reservoir or "float." There at the front of one line is a red Hornet body —your car.

Quickly the body is hoisted up and plunked down so that it moves sideways on a new conveyor. Traveling at a slow saunter, it passes between several hundred people who add wiring, tubing, steering, front suspension, shocks. You pause to watch a man put on a front coil spring (air-compress it, clamp it, fit on car, recompress it, pull off clamp). Then temporarily leaving your Hornet, you walk on to a strange line tucked within the main one.

Lazy Susan. Officially it's "front-end sheet-metal assembly." Actually it's an endless oval of moving fixtures, each on a traveling platform. Supplies of screws, rivets and chromed brand medallions are racked on each fixture. Workers step aboard the platform, do a couple of jobs and step off. Fenders, grilles, radiators and headlights funnel in to feed this huge lazy Susan. You see a red Hornet front end take shape, and behind it a green Rambler one. They go off in what seems to be the wrong direction, but they'll be back.

By now your Hornet's body, sporting its front suspension and wiring, reaches the end of its "make-up" line. Deftly switched hoists swing it high in the air where it neatly fills a gap in a file of semibuilt cars rolling by overhead. Each body hangs from a carrier with four J-shaped hooks. Following your Hornet is a green Rambler wagon—on the final line, Ramblers alternate with Nash-Hudson cars.

Motors meet. Farther along, a line marches in with engines and, to no one's surprise but yours, deposits a big V-8 with air-conditioning compressor on it just ahead of your car. Swiftly a team of eight or nine people take over. One man snares the engine with a hook; another thumbs the hoist controls to swing it up in the air, its transmission low; and others shoehorn it diagonally into its nest between the wheel housings. Immediately a masked welder appears on a moving cart and proceeds, alarmingly, to strike an arc by the front mount.

Distressed by the thought of an engine welded in place, you almost squawk in protest before you see that he is actually welding on a cross member that came bolted to the engine. In the future a mechanic can still pull and reinstall the engine; but on a line moving up to 50 feet a minute, with only seconds available, the V-8 slides in easier if the crosspiece comes later.

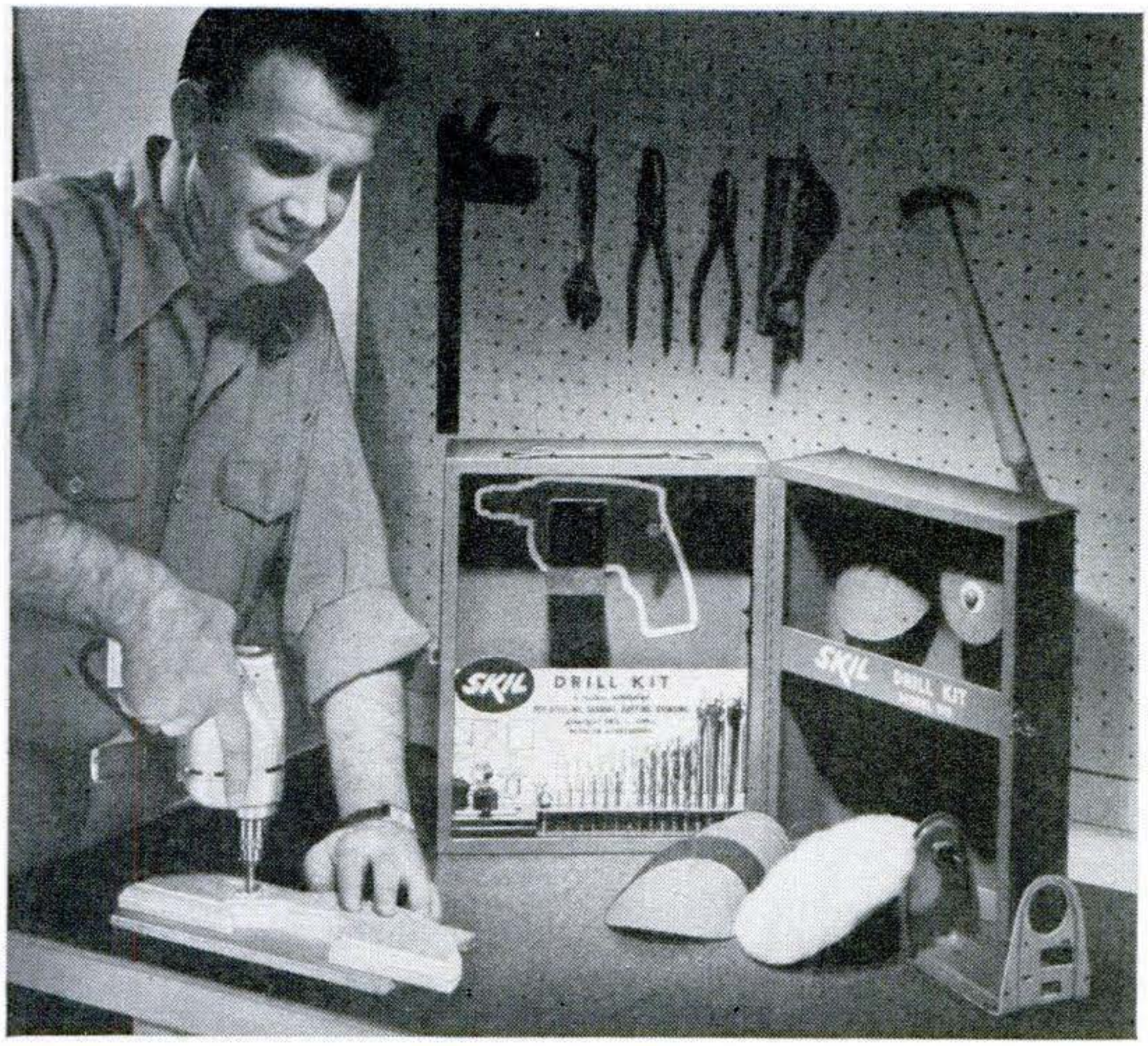
Meantime I've been goggling at the way they've popped an L-head six into my Rambler. Here the crosspiece was already in, so they dropped the hook through the front opening and snugged the engine up from beneath.

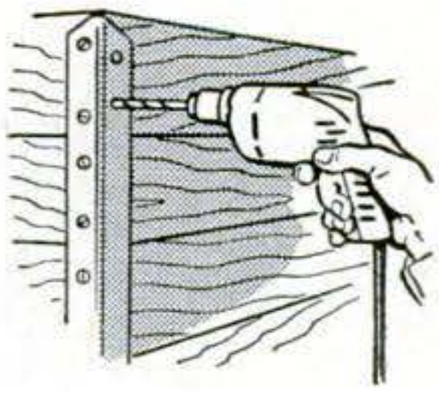
Things happen fast now. Another crew has trundled up a rear axle and torque tube under the Hornet on a high,

[***Continued on page 256***]

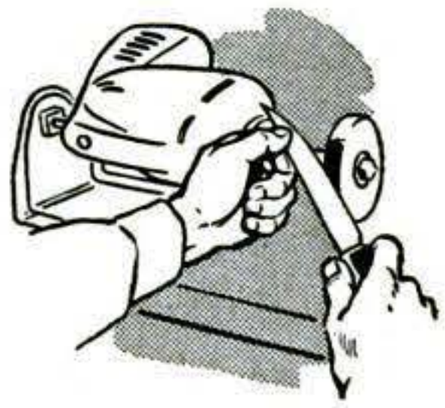
Copyrighted material

A WHOLE SKIL WORKSHOP for only $39.95!

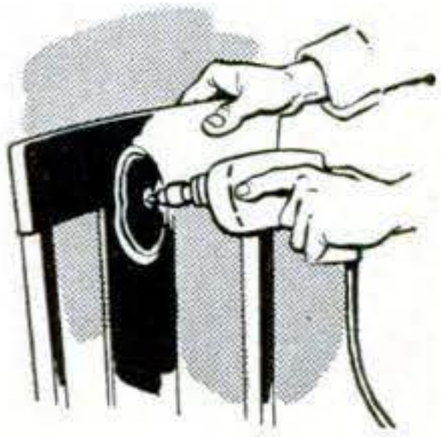




Drilling jobs are simpler . . . in wood or metal.



Grind metal, sharpen knives or garden tools with proper accessories.



Sand and finish woodwork and furniture.

Polish furniture, shine the auto easier and faster.

Now! Own This Famous 32-Piece SKIL Drill Kit At Big Savings!

Try this kit and you'll fall in love with it! Amazingly versatile . . . and so superbly made that any craftsman will appreciate it. You'll use it for literally hundreds of jobs . . . *sanding, drilling, polishing, grinding, wire brushing.*

There's never been a tool value like it. A powerful ¼" SKIL Drill *plus* a whole battery of useful, high quality accessories. Compare this drill and attachments with any other. Tool for tool, there isn't a kit on the market that offers as much value. Made by the famous SKIL Corporation, for over 30 years leaders in the manufacture of quality electric tools.

Just look at all you get!

Model 549 SKIL Drill with geared chuck . . . Drill Stand . . . Rubber Disc Pad . . . Polishing Bonnet . . . 5 Sanding Discs . . . 2 Arbor Adapters . . . Paint Mixer . . . Grinding Wheel . . . Wire Brush . . . Countersink . . . 3 Wood Augers . . . 13 Drill Bits . . . Wall Type Carrying Case.

Model 515 Drill Kit—all this for only $39.95

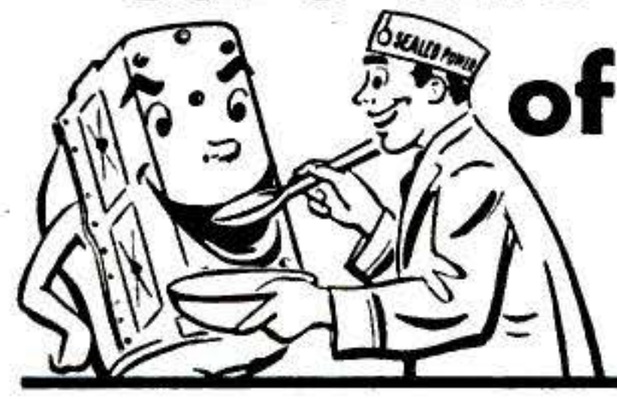
Learn about the fun a SKIL Drill Kit offers. See it and try it at your hardware, department or appliance store.

SKIL
BUILDERS TOOLS

Made only by SKIL Corporation
formerly SKILSAW, Inc.
5033 Elston Avenue, Chicago 30, Illinois
3601 Dundas Street West, Toronto 9, Ontario
Factory Branches in ALL Leading Cities

Copyrighted material

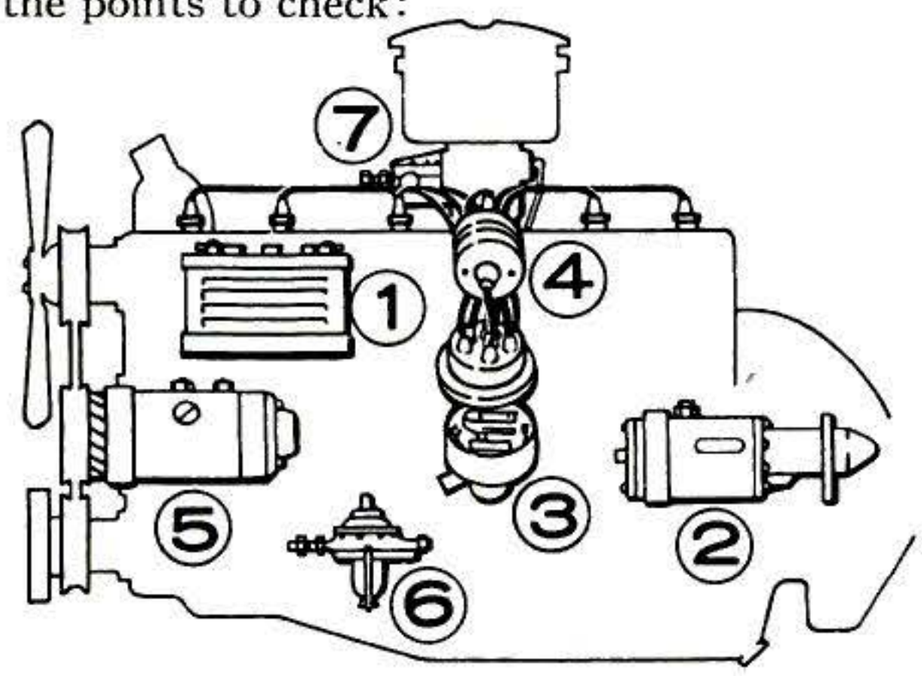
Care and Feeding of Engines



BY
S. P. CORP

TUNE-UP TIME

Lagging engine performance calls for a tune-up. Here are the points to check:



1. BATTERY—Test voltage of each cell. Cells should be equal. Tighten all connections, including those behind instrument panel.

COMPRESSION—Test compression of each cylinder. They should be within 10 lbs. of each other, and up to manufacturer's standard of 110 to 120 lbs. Low reading indicates leaking rings, valves, or head gasket.

VACUUM TEST—A vacuum gauge connected to intake manifold may indicate poor ignition, carburetion, or compression, which may be due to one of the following:

2. STARTER MOTOR—Test voltage and amperage draw while starter is cranking engine. See diagram.

3. DISTRIBUTOR—Remove and check in a distributor tester for operation of all speeds. Test manual and vacuum advance. Time the engine.

4. COIL—Use coil-tester to test output at all speeds.

5. GENERATOR—Test against manufacturing specifications.

6. FUEL PUMP—Test pressure, vacuum, and volume.

MUFFLER SYSTEM—Check for any exhaust restrictions.

CYLINDER HEAD—Tighten all cap screws and manifold nuts to specifications, while engine is hot.

7. CARBURETOR—Clean carburetor and air screen; check float level and jets against specifications.

VALVES—Adjust tappets while engine is hot, unless manufacturer says adjust while cold.

NEW FREE REFERENCE BOOKLET
A post card request will bring your free copy of "Care and Feeding of Engines," with many valuable do-it-yourself details on car care. Use Sealed Power KromeX Ring Sets for immediate oil control, finest performance, and longest wear in modern engines. Sealed Power, Dept. H-5, Muskegon, Michigan.

Sealed Power
PISTON RINGS

How They Produce Cars Nowadays
[*Continued from page 254*]

jack-elevated dolly. Watching the seven pairs of hands under the moving car, here about five feet off the floor, you note that most—not all—of this team are short people. "We *do* try to match a man's job to his size," a foreman answers you. "But there's a limit to the number of real short guys I get."

Slanting down until the cars are only a foot or two off the floor, the J-shaped carriers curve back to their date with the lazy Susan. Like a glove going onto an outstretched hand, a complete front end slides onto each car. High-cycle and air-driven tools secure it in seconds. After a plunge into a noisy tunnel for undercoating, the cars curve onto a long, straight line that looks at last the way you thing it should. On go mufflers, tailpipes and bumpers. The big J hooks delicately deposit each car on a moving chain and go sailing off overhead.

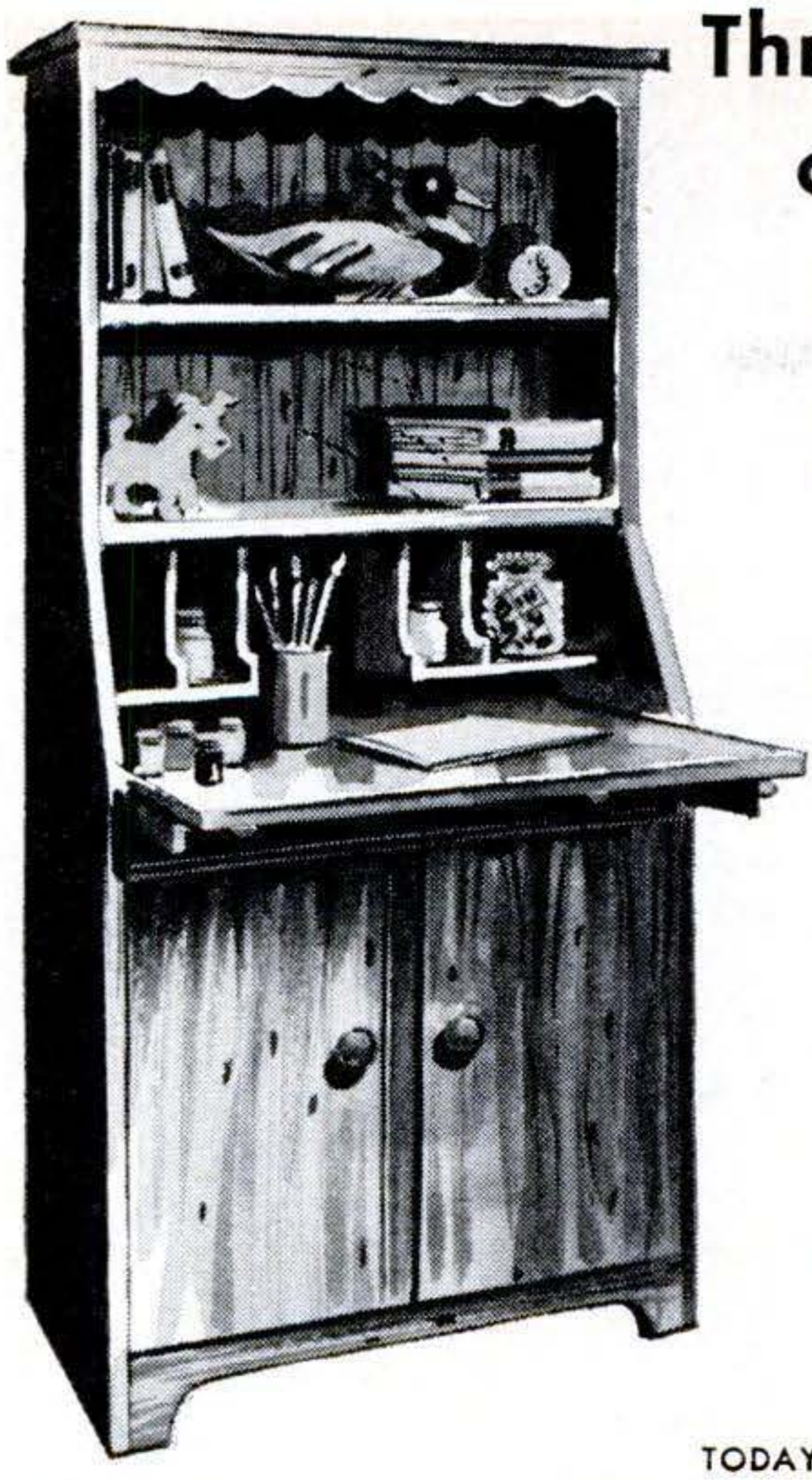
Smokers and cripples. Each car has a rendezvous with its wheels, which come sliding along, five of a color, on an overhead chute. (The chute divides in two, with an ingenious selector diverting three of a color to one side of the car and two to the other.) In go mats, seats and spare tires; from beneath each car a clatter of air tools tell of activity there, too. You watch a man connect the cables to a newly installed battery. "Naw," he tells you. "Don't get one 'smoker' in a hundred. If she does smoke, you pull off the cable and they check wiring later. Just means somebody's connected something wrong."

In go oil, water, gasoline. Then a coveralled man slips behind the wheel of your Hornet, flips the switch, runs the starter for a few seconds. The engine catches and he drives your car off the line. Another man steps up (be careful of my baby!) and drives the Rambler off under its own power. You wait while a dozen cars go by, obscurely hoping one won't fire up. But they all do, and you question a mechanic nearby.

"Sure, we get a cripple occasionally.

[*Continued on page 258*]

Copyrighted material



Thrill your child with this drop-leaf desk and bookcase!

get complete detail drawings, photograph and directions in

FREE PATTERN KIT 305

—along with picture-packed booklet, "Friendly Home Ideas in Western Pine." Write for it to Western Pine Association, Dept. 305-L, Yeon Building, Portland 4, Oregon.

the Western Pines

* IDAHO WHITE PINE
* PONDEROSA PINE
* SUGAR PINE

This desk — scaled to a child's proportions — is just like a grown-up's with pigeonholes, pencil racks, drawer, shelves and cabinet. And the mellow woods of the Western Pines* lend their own special charm to the simple New England design.

It costs so little to build this desk with the woods of the Western Pines. You'll find that they cut clean and accurately with hand or machine tools and take all finishes well.

Ask your local lumber dealer for the woods of the Western Pines — he'll be glad to give you an estimate!

TODAY'S WESTERN PINE TREE FARMING GUARANTEES LUMBER TOMORROW

UTICA® Adjustable Wrenches

FOR THE BEST IN GOOD TURNS

LOOK FOR THE NAME UTICA®

No. 91

Yes, many, many good turns because they offer you a very special UTICA feature. The jaws surfaces are extra hardened by UTICA's own process of electronic induction. Jaws resist nicks and burrs, stay smooth and new-like up to 10 times longer than ordinary adjustable wrenches.

An adjustable wrench is a mighty handy tool, but be sure to look for the name UTICA on the handle. Sizes from 4" up to 18"

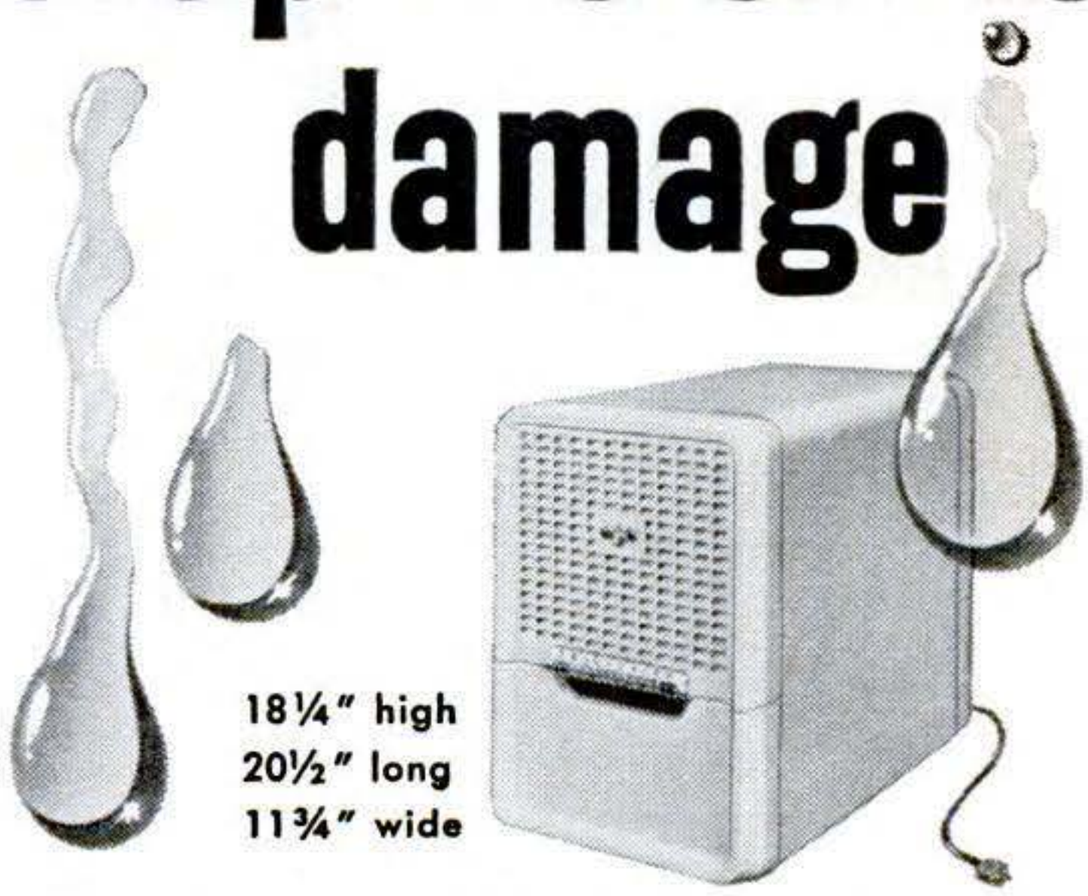
U TI CA ®

THE HALLMARK OF QUALITY

UTICA DROP FORGE & TOOL CORP.
UTICA 4, N. Y.

In Canada: Adlam Tool & Supply Co., Ltd., Montreal

Stop moisture damage



18¼" high
20½" long
11¾" wide

Just plug in the amazing FRIGIDAIRE electric DEHUMIDIFIER

Positively controls moisture in workshops, basements, or any closed area up to 10,000 cu. ft. where moisture is a problem.

See your Frigidaire Dealer for further details. Or write for free folder to Frigidaire, Dept. 2331, Dayton 1, Ohio. In Canada, Toronto 13, Ontario.

Built and backed by General Motors

Copyrighted material

B&D 6 inch Heavy-Duty Saw—a professional tool at a popular price! Features a specially-designed, better-built B&D motor that cuts wood like butter; instant-release trigger-switch and telescoping blade guard with lift-lever for safety. Cuts 2 inches deep, adjustable from 0° to 45°. At hardware, lumber & department stores.

See "Tools-Electric" in phone directory for

Black & Decker®

PORTABLE ELECTRIC TOOLS

The Black & Decker Mfg. Co., Dept. S055, Towson 4, Md.

Gentlemen: Please send me
☐ Kitchen Cabinets Pattern #201 (price: $1.00)
☐ "Handy Tips" booklet (price: 25¢)

Name.....

Address.....

City.....Zone.....State.....

*T. M. REG. EASI-BILD PATTERN CO.

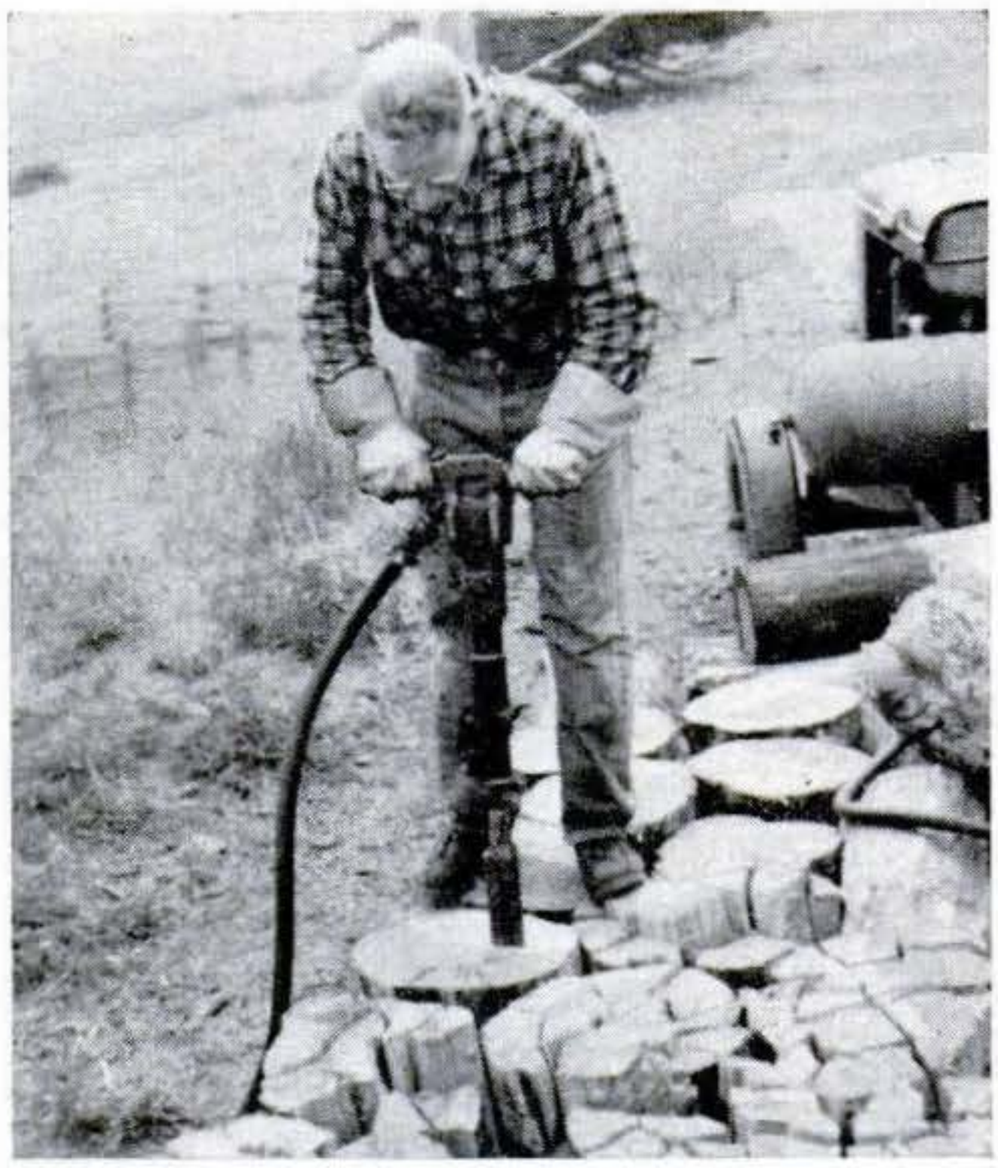
How They Produce Cars Nowadays

[Continued from page 256]

That's why I'm here. Usually just means a wire's off or the fuel isn't getting through."

Ahead, three freshly started cars are on test rolls—floor rollers that let an inspector drive an unmoving car while he rates brakes, transmission shifts and speedometer calibration. Then the newborn cars pass in slow double files over two long pits for an ordeal called Final Tune-Up and Inspection. Quick, clever machines align front wheels and headlights. Scores of specialists soberly scrutinize each car, rating it on a check list. Cars with a clean bill of health roll off to Shipping; those that flunk go to a Limbo called Final Repair.

There painters, mechanics and sheet-metal men do whatever has to be done before the cars are resubmitted to inspection. Your Hornet and my Rambler, however, sailed right through like most cars. Now they are waiting for *us* to baby them. END

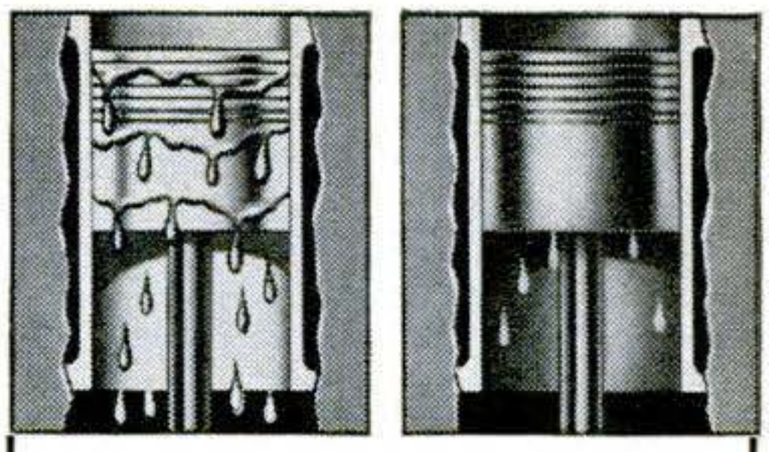


Compressed Air Splits Logs

A RETIRED admiral, L. J. Hudson of Carmel, Calif., here demonstrates his ingenious method for feeding the fireplace. He bought a used air compressor, attached it to a Thor pavement breaker and made his own splitting wedge. He says the angle of the wedge is the key to its success.

Copyrighted material

HOW AUTO ENGINEERS KEEP THEIR CARS TUNED UP WITH **MIRACLE POWER**



It takes up to 5 minutes for oil to be pumped to all moving parts of your engine. Meanwhile, your motor is running "dry" . . . and wearing out fast. Miracle Power prevents dry starting damage.

When engineers take a technical product to their hearts, you can bet it's really good. And auto engineers themselves tune up their engines with Miracle Power.

They know that most motor wear takes place in the first five minutes after you start your car, before oil has been pumped to all moving parts. They know, too, that the temperature in combustion chambers goes as high as 1400° F, while oil burns off at 550° F. And oil that's burned off can't lubricate. That's why even new cars can develop sticky valves, noisy hydraulic valve lifters, and sluggishness.

But Miracle Power provides lubrication under *all* circumstances. It contains colloidal synthetic graphite in suspension. The graphite forms a lubricating film that sinks into metal like hot butter into bread.

This coating won't burn off and it doesn't build up. It keeps your engine always tuned, prevents dry starting damage, lubricates in the combustion chamber, frees sticky valves and hydraulic lifters, cuts oil consumption.

Car makers recommend Miracle Power®

Miracle Power is not a chemical. It's *all* lubricant, and the **only** product of its kind approved by and specially packaged for leading car makers and their dealers—Ford (shown here), Kaiser, Willys. It *has* to be good.

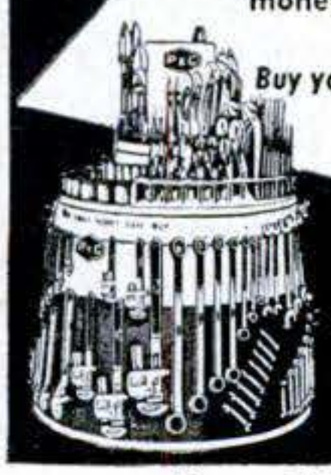
Follow the lead of auto engineers and prove it yourself. Add an 85c can to your oil and gas every 1000 miles; use the 39c size in gas between treatments.

Get Miracle Power at car dealers, garages, service stations. It treats the engine, not the oil.

THE AP PARTS CORPORATION *Miracle Power Division*
C-5 AP Building Toledo 1, Ohio
Mufflers • Pipes • Miracle Power • dgf 123

YOUR
TOUGHEST JOBS ARE EASY WITH P&C HEAVY-DUTY PIPE WRENCHES

You make end pulls, longitudinal pulls, and bends faster and easier with this rugged P & C wrench. Sturdy housing won't break; full-floating, quick-grip, non-slip, non-lock hook jaw, handy pipe scale; replaceable heel jaw. Adjustable nut spins easily. Comfortable, lightweight "I Beam" handle. Finish resists rust and corrosion. Sizes: 6" to 24". Guaranteed . . . the best tools money can buy.



Buy your P & C tools from this handy display.
Send 10c for catalog of 500 top quality tools.

P&C®

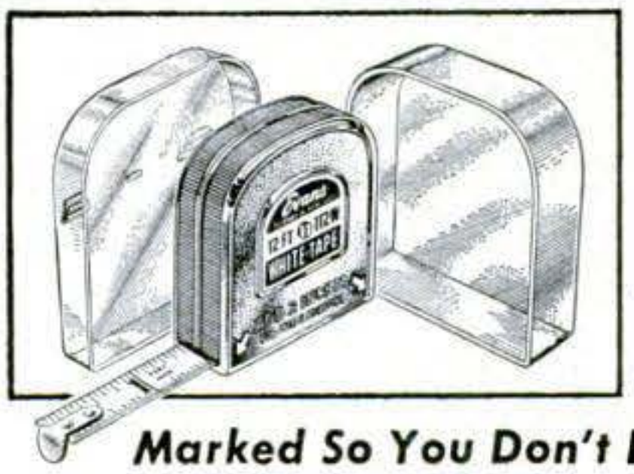
P&C HAND FORGED TOOL COMPANY

Dept. F3, Box 5926, Portland 22, Oregon

NEW 12-FT. POCKET TAPE
MAKES L-O-N-G MEASUREMENTS EASY

***made only by* EVANS**

Only $1.89

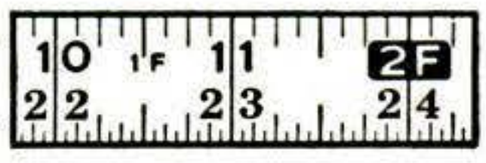


No longer need you make **two** measurements for 12-ft. jobs as you must do with shorter tapes. Chrome-plated case is no larger. Each EVANS Tape packed in FREE transparent Tenite utility case.

Marked So You Don't Have To Figure

No Other Tape Is Marked This EVANS Way

Work in feet and inches? Read here ▶
Work in inches? Read here ▶



King-Size 10-Ft. White-Tape

STANDS UP STRAIGHT

For Upright Measurements!

Wider (3/4") heavy-duty blade makes those long upright measurements easy and accurate. Exclusive EVANS double markings, same as 12-ft. pocket tape. FREE belt clip and Tenite utility case with every EVANS King-Size.

Only $2.39

At hardware stores everywhere in U.S.A.

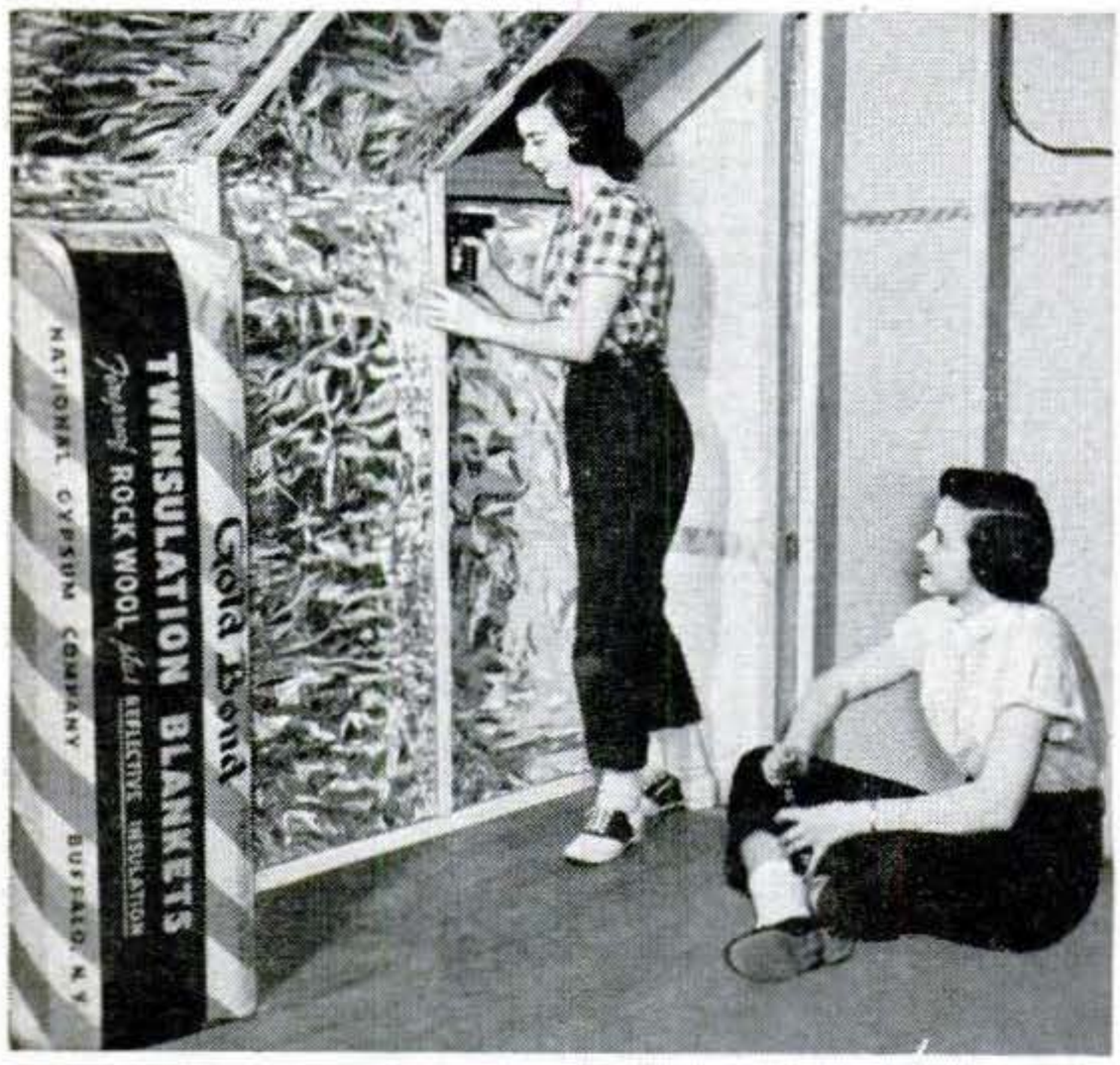
2642

***Evans* & CO., Elizabeth, N. J.**
Makers Of Evans "Long Tapes"—25-50-75-100 Ft.

Copyrighted material

"We'll be cooler this Summer, warmer next Winter, with

TWINSULATION"



"Dad said we could have our own bedroom in the attic *if we'd insulate it* ourselves with Gold Bond Twinsulation Blankets. They were as easy to put up as it looks in the picture... and fun, too!" say Lucy and Peggy S____, Eggertsville, N. Y.

INSULATE YOUR HOME now with new Gold Bond Twinsulation, the most efficient home insulation against summer heat and winter cold ever designed. Twinsulation has a *double* action. The fireproof rock wool center *blocks* heat, and the aluminum surfaces *reflect* heat. Twinsulation will actually keep your rooms up to 15° cooler this summer, and cut next winter's heat bill up to 20%. Soon pays for itself! So easy to install... you can do an average attic in a few hours time! Start now...see your Gold Bond dealer today!

NATIONAL GYPSUM COMPANY • BUFFALO 2, N. Y.

Send for complete How-To-Do-It booklet on insulating your home... then see your Gold Bond dealer!

NATIONAL GYPSUM COMPANY S5
Dept. PS-55, Buffalo 2, N.Y.

I enclose 10¢ for "Home Insulation" booklet.

Name _____

Address _____

City _____ *County* _____ *State* _____

Let's Go Driving on the Railroad

[Continued from page 156]

down. That raises or lowers the flanged wheels.

Other changes were made. The standard sedan low-pressure tires were replaced with heftier, light truck tires inflated to 60 pounds.

To keep the car on the rails, "air lifts" —often used by hot-rodders to stiffen their suspensions—were put inside the front coil springs. Because the rear wheels are not independently sprung, no such precaution was needed there. But three leaves were added to stiffen the semi-elliptics. Coils, just clearing the body with a light load, were put on to prevent bounce under extra weight.

A cemetery is a place where a lot of over-ambitious drivers come to a dead stop.
—THE SIDEWALK SUPERINTENDENT

To get traction in the rear, 60 percent of the weight was put on the tires. In front, the flanged wheels bear 60 percent of the weight to keep them on the rails.

Wheel treads were altered to conform with the 56.5-inch width between rails by sawing the rims off the wheels and rewelding them. The frame was extended slightly fore and aft to take the anchorages for the flanged wheels.

No change was made in the rear axle, transmission or brakes. The rubber-tired rear wheels drive "100" on the road and on the rails. Standard hydraulic brakes stop it. Good judgment is required to drive it on the rails if they are slicked by rain, snow or ice. Traction under such conditions is even less than it is on a highway.

The car was rebuilt at the Central's Collinwood experimental shops in Cleveland on President Perlman's orders. He knew what he wanted—he had had a similar inspection car, with flanged wheels that had to be raised and lowered by hand, when he was head man on the Denver & Rio Grande Western Railroad. END

Copyrighted material

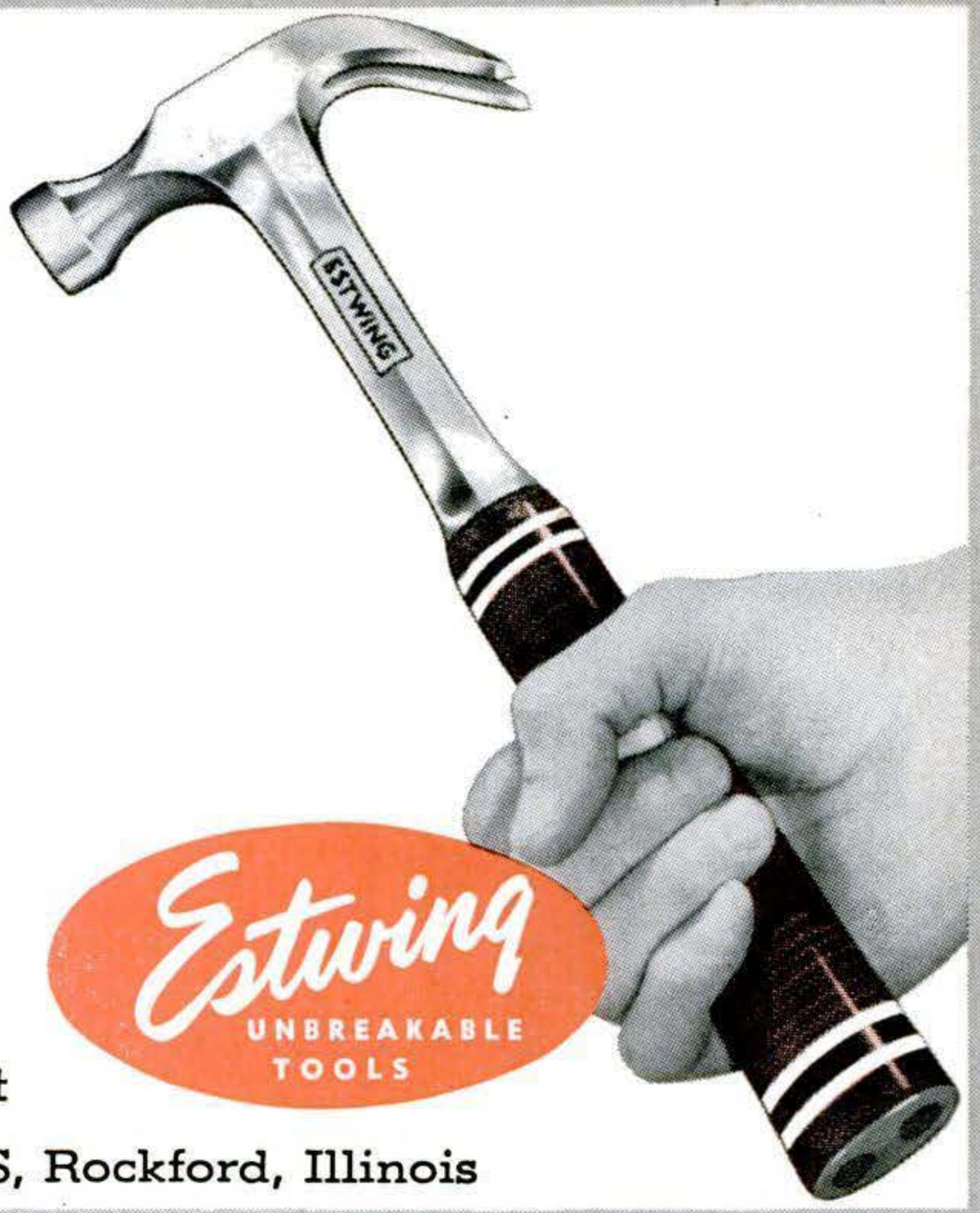
Under the Beauty...

Steel for strength...
Leather for comfort!

You'll like the skillful way that Estwing craftsmen combine leather and steel in making the world's only one piece hammers and hatchets.

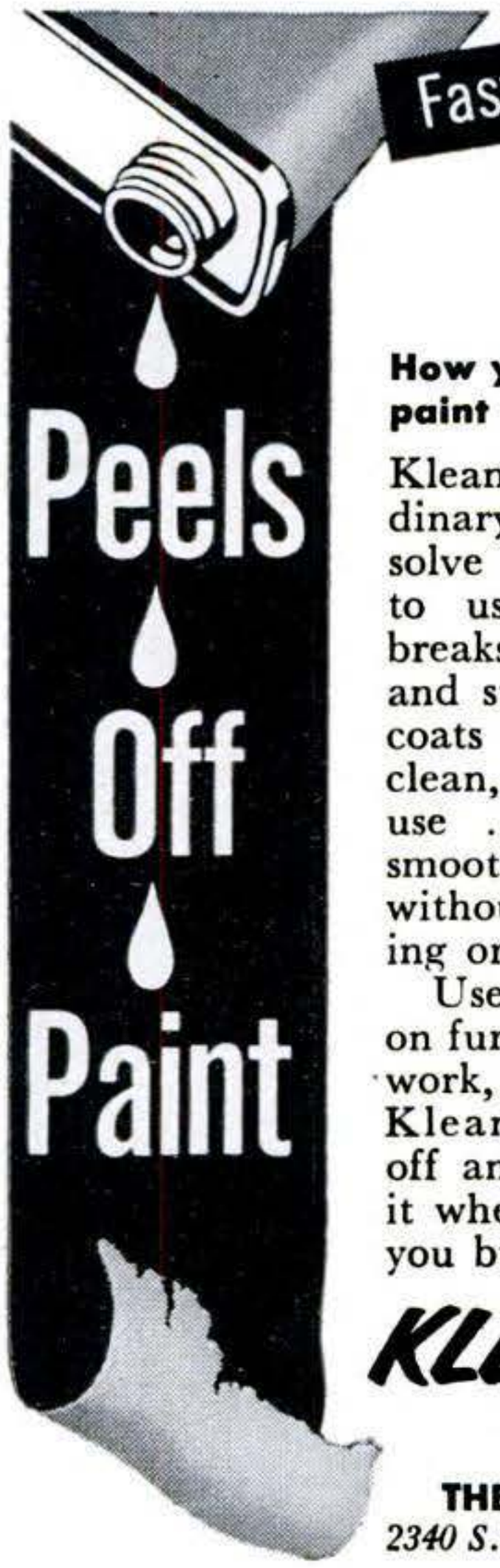
Perfectly balanced and beautifully finished, Estwing is the choice of skilled tradesmen the world over.

Available at your favorite hardware store. $3.95



FREE Catalog on request

Estwing Mfg. Co., Dept. 4S, Rockford, Illinois



Fast, Safe
No Wash
Non-inflammable

How you can get perfect paint jobs every time!

Klean-Strip is totally unlike ordinary paint removers that dissolve the finish and are so messy to use. Klean-Strip actually breaks the bond between finish and surface . . . removes many coats with one application. It's clean, fast-acting and easy to use . . . leaves the surface smooth and dry, ready to paint without neutralizing or afterwash.

Use Klean-Strip on furniture, woodwork, walls, metal. Klean-Strip peels off any finish. Buy it when and where you buy paint.

KLEAN-STRIP

Paint Remover

THE KLEAN-STRIP CO., INC.
2340 S. Lauderdale, Memphis 6, Tenn.

FREE

SANDING HANDBOOK

For DO-IT-YOURSELFERS!

Free new 20-page handbook explains sanding technique on wood, metal, glass, plastic; shows correct methods, names the proper tools for removing surfaces of different types of woodwork. Lists sandpaper grades, uses; tells how to sand hard-to-reach places, etc. Helps you save time, money on home projects—invaluable to beginners, experts. Authoritative, informative! Fully illustrated. Includes Syncro catalog of Sanders, Jig Saws! Send coupon for your *free* copy now.

NEW HEAVY-DUTY SYNCRO SANDER
Removes paint, varnish — outsands all others per dollar cost. Has sight-saving lamp — world's **most powerful** reciprocating sander motor (patented). Priced **LOW.**

SYNCRO CORP.
Dept. 2-55, Oxford, Michigan

UL Approved

Send me FREE Sanding Handbook, Syncro Sander Catalog, LOW Prices.

Name.....

St. & No. .....

City.....State.....

Copyrighted material

CASITE GUARANTEES
SMOOTHER PERFORMANCE
LESS ENGINE REPAIRS
OR DOUBLE-YOUR-MONEY-BACK

ONE PINT
CASITE®
OIL ADDITIVE AND TUNE-UP

FOR ALL ENGINES—OLD OR NEW
Smoother Performance
Less Engine Repairs
OR Double-Your-Money-Back!

For a smooth running engine all the time, keep Casite in your crankcase oil. Over 100,000,000 pints sold. At service stations, garages and car dealers everywhere.

Only $1.00

He's Building a Steam Car

[Continued from page 198]

Pursuing his fascination with the very small, Boss has built minute steam engines of 1/8" bore and stroke, with boilers to match. An experimental flash-steam car about 3" long has as its boiler a coil of small copper tubing, fed with water by a pump geared to its tiny double-acting engine. A more ambitious steam venture is the O-gauge locomotive shown on page 197.

In the same scale, Boss has added intricate detail to rolling stock, including vestibule steps that fold down and a dining car outfitted with tables and chairs; glasses, shakers and menus on the tables; and pots and pans in the galley.

But O gauge is too large to challenge Boss now. Not long ago he discovered TT gauge. Into a portable box the size of a suitcase he built a compact little layout complete with two-level track, figures, houses and landscaping (PSM, Sept. '54, p. 182)

Using kits as a basis, Boss added working valve gear to the locomotive, steps and ladders to the cars, and even ratchet wheels to the brake staffs. Until you use a magnifying glass, you have to take his word for it that these have teeth.

Boss makes human figures and such minute accessories as crossing signs out of steel and brass. Even the gutters and downspouts on the tiny general store in the layout are made of metal.

They were formed, Boss explained, by cutting strips of shim brass and drawing it through successively smaller holes in a die plate. I asked him why he hadn't used wire for the downspouts at least, since it would look exactly the same.

"Well," he answered with a perfectly straight face, "you couldn't drain anything through it." END

In the Heart of Texas

"What do you have that is of unusual interest in your city?" asked a dear old lady touring Texas.

"Well," said a native, "we have the only helium plant in the world."

"You don't say. Is it in bloom?"—*Wireco Life.*

Copyrighted material

Get the brake linings with the

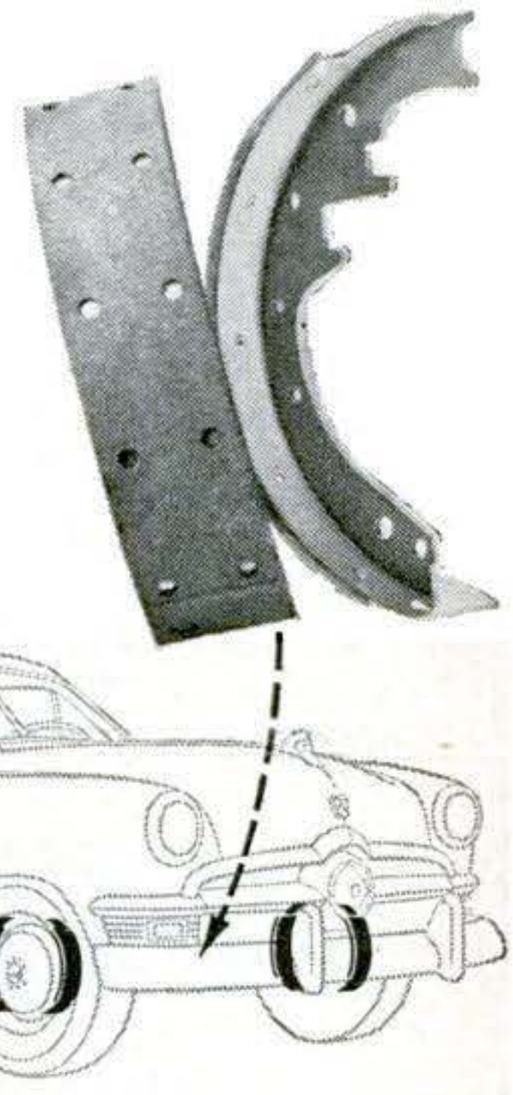
IRON GRIP

Genuine Ford brake linings are heat-tested, torture-tested to prove they'll keep their iron grip

When new brake linings are called for in your Ford it's very much to your advantage to specify Genuine Ford brake linings. Here's why . . .

By insisting on Genuine Ford linings you are assured of (1) parts that are made specially for your Ford and (2) parts that have had to undergo 3,250 actual tests to prove they can "take it" under the most gruelling conditions.

When replacements will add to your Ford's performance, always make sure you're getting Genuine Ford Parts. *They're made right to fit right to last longer!*



GENUINE Ford PARTS

Keep your Ford all Ford

May is National Safety Month—Be sure you can see, steer, stop safely.

Copyrighted material

GUILTY OF NEGLECT!

This motorist neglected to have his service man check his oil filter every time he changed his oil. The penalty: costly engine repairs. A clogged oil filter lets gritty road dust, hard carbon and sludge grind away at delicate engine parts. Keep out of trouble! Ask your service man to check your filter when changing oil. Insist on Purolator -- toughest, most efficient filter made. There's one engineered for every make of car. Refills cost as little as $1.60.

PurOlator

America's No.1 OIL FILTER

"Purolator," Reg. U. S. Pat. Off.
Purolator Products, Inc., Rahway, N. J.; Toronto, Canada

Diamonds Are Where You Make Them

[Continued from page 112]

and pressed it against a polishing wheel, he found a core of superhard matter that refused to wear away.

A tiny glittering crystal appeared in the midst of some dark, gritty stuff. Strong removed the crystal and tried one of its hard points against three of the hardest substances known—sapphire, which rates 9 on a hardness scale on which diamond is 10, and silicon carbide and boron carbide, which rate 9.5. The crystal easily scratched all three. Almost certainly it was a diamond.

Additional tests on this and other GE-made crystals proved that the scientists had, indeed, reached their goal. Tiny though they were, the man-made crystals scratched natural diamonds. They refracted light as natural diamonds do. They had the same chemical content as natural diamonds. And their "fingerprint"—the crystal structure shown by the X-ray diffraction pattern—was identical with that of natural diamonds that were compared with them.

When GE announced its findings, in February, it had produced diamonds more than 100 times, using a number of combinations of heat, pressure, time, and starting materials. It had also produced them in a 400-ton press as well as in the more expensive big one.

GE's largest diamond—not quite 1/16 inch long—is still the first one. All the others would be classified as diamond dust. Arranged end to end, 100 of them would cover a line no longer than one inch. But even such tiny stones have value. Industrial diamonds—essential for cutting, grinding, drilling, and polishing hard materials—cost about $7,000 a pound, and the U.S. uses an estimated $25,000,000 worth a year.

The company is not yet ready to produce even diamond dust commercially. Whether or not it can ever produce diamonds of gem quality and size, it does not know. "But if we can do it in a small way," says the company's president, Ralph J. Cordiner, "I think we can do it

[Continued on page 266]

Copyrighted material

Now! Professional quality in a 7″ saw — at only $75!

Stop envying the man with a Porter-Cable *quality* saw—see the great new 7″ Model 115 *at only $75!*

Here's true *professional* design and construction—power and speed to spare—*ruggedness* for the hardest kind of use. Yet the 115 is light and compact, perfectly balanced—a honey to handle on any job.

Efficient 7″ blade makes full 45° cuts in 2″ dressed lumber. Big 10 Amp. universal motor and precision ball bearings give a speed of *4500 RPM under load.* Instant depth and angle adjustments, telescope safety guard, exclusive Kickproof Clutch. Accessory table quickly converts the Model 115 to a big-capacity, precision table saw.

Like all Porter-Cable tools, the 115 is *built to last* through years of faithful, dependable service. Look at it and try it soon.

MODEL 115 SAW . . . COMPLETE, ONLY $75

With Kickproof Clutch, combination blade, double end wrench, 10 ft. cord and plug. Full line of accessory equipment includes cross-cut and rip blades and guides, abrasive blades for problem materials, handy carrying case.

VISIT YOUR PORTER-CABLE DEALER OR MAIL COUPON TODAY

PORTER-CABLE MACHINE CO.
5155 N. Salina St., Syracuse 8, N. Y.

Send complete information on the Model 115 Saw.

Name.....

Address.....

City.....Zone.....State.....

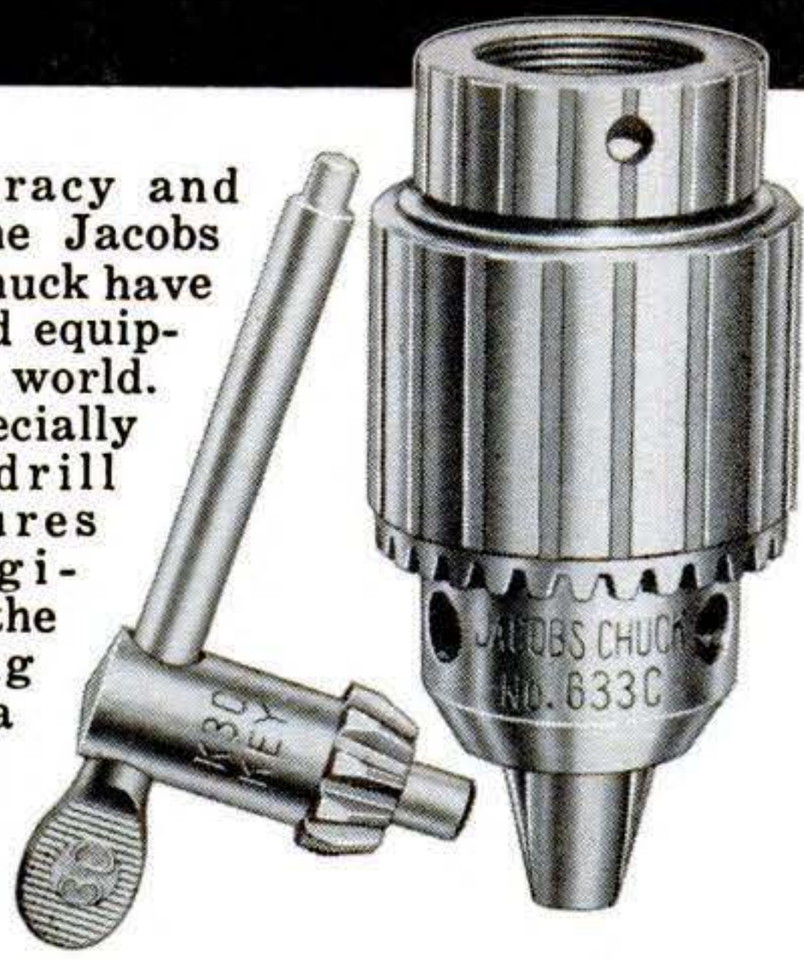
Porter-Cable

Homemaster Tools

Copyrighted material

IN INDUSTRY...

The grip, accuracy and durability of the Jacobs Plain Bearing Chuck have made it standard equipment all over the world. This model, especially designed for drill presses, features a Jacobs-engineered PLUS – the threaded locking collar for extra safety and more versatile use of the tool.



The Jacobs Plain Bearing Chuck equipped with threaded locking collar makes any drill press a safer, surer, more versatile tool.

Safer because the threaded collar keeps chuck locked on tapered spindle regardless of speeds or type of thrust.

Surer because it's a Jacobs, the most accurate, holdingest, longest lasting chuck of its kind – anywhere.

More versatile because it eliminates the necessity of using special collet chucks or similar adapters for holding routing, carving or dovetailing bits.

When you work with a drill press or portable electric tool you'll hold your drill or bit best when you use a Jacobs Chuck. There is none better for accuracy, grip and durability. The Jacobs Manufacturing Company, West Hartford 10, Connecticut.

Jacobs
RUBBER-FLEX COLLETS

Jacobs
CHUCKS
If it's a Jacobs-it holds

Diamonds Are Where You Make Them

[Continued from page 264]

in increasing quantities and increasing size."

Two rugged individualists in a New York City suburb let it be known, the day after GE's spectacular announcement, that they, too, had been making diamonds. But their diamonds were only dust, they said, so they had withheld the news.

One of these scientists was Dr. Leandro Tomarkin, a graying-haired, Swiss-born biophysicist who had come to this country as Secretary General of the Second International Conference of Physics, Chemistry and Biology, held at Columbia University in 1940. The other was Mario Vilella, a graduate of the University of San Juan, Puerto Rico, who had come to New York in 1945 as chief chemist for a research company.

A stocky, black-haired, intense young man, Vilella had devised an apparatus in his spare time into which enough heat could be poured and enough pressure applied—he thought—to make diamonds. Tomarkin, who had been interested in Moissan's experiment, thought Vilella's approach was promising. Further, he realized that if the young chemist's apparatus would turn carbon into diamonds, he should also be able to make interesting and profitable new alloys.

Tomarkin organized the Vitron Research Corporation, and raised $150,000 among his acquaintances—including a New York diamond dealer. Then he and Vilella moved their families to a secluded 17-acre estate in southern Rockland County, N. Y., and turned the cow barn into a laboratory.

They bought a press—only a 300-ton one, but big enough to give a 500,000-psi squeeze. They couldn't get enough power from the local electric company, so they also bought a 25-kilowatt generator.

A novel part of their apparatus, the chamber holding the material to be squeezed, consists of a cylindrical aluminum shell with a layer of refractory or

[Continued on page 268]

Copyrighted material

MORE POWER PER DOLLAR

with Millers Falls

DYNO-MITE

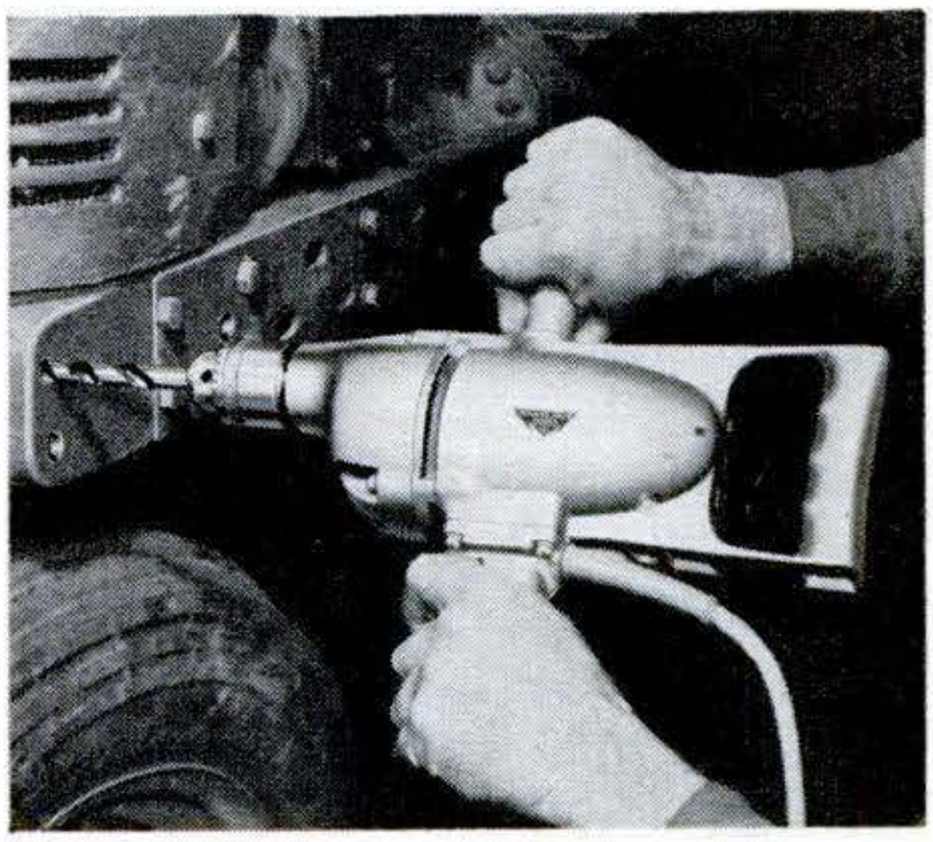
REGISTERED U. S. PATENT OFFICE

POWER TOOLS

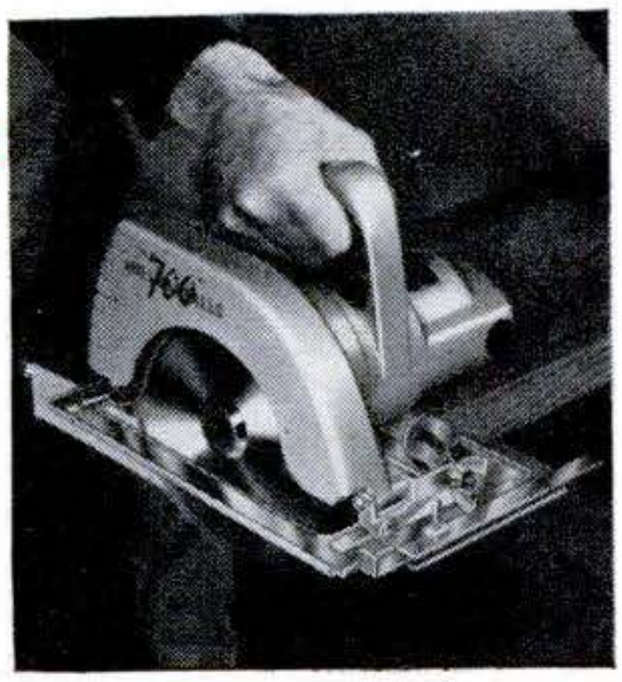
When you buy power tools, make sure you get POWER — lots of it! Buy Millers Falls Dyno-Mite Power Tools. They're rugged, dependable and powered to handle the toughest kinds of jobs. And they're built with all the skill and quality that have made Millers Falls Tools world famous. See them at your hardware dealer's. Write, too, for free illustrated folders.

MILLERS FALLS COMPANY
Dept. PS-7 • Greenfield, Mass.

LOADED WITH POWER and famed for performance, this Millers Falls ¼" Dyno-Mite Drill is the finest in its class. It's compact and light with a full 1.7 amp. rating — plenty of power for drilling ¼" in steel, up to ¾" and even higher in wood. Power to spare, too, for operating polishing bonnets, grinding wheels and many other attachments. **No. 1814, $22.35.**

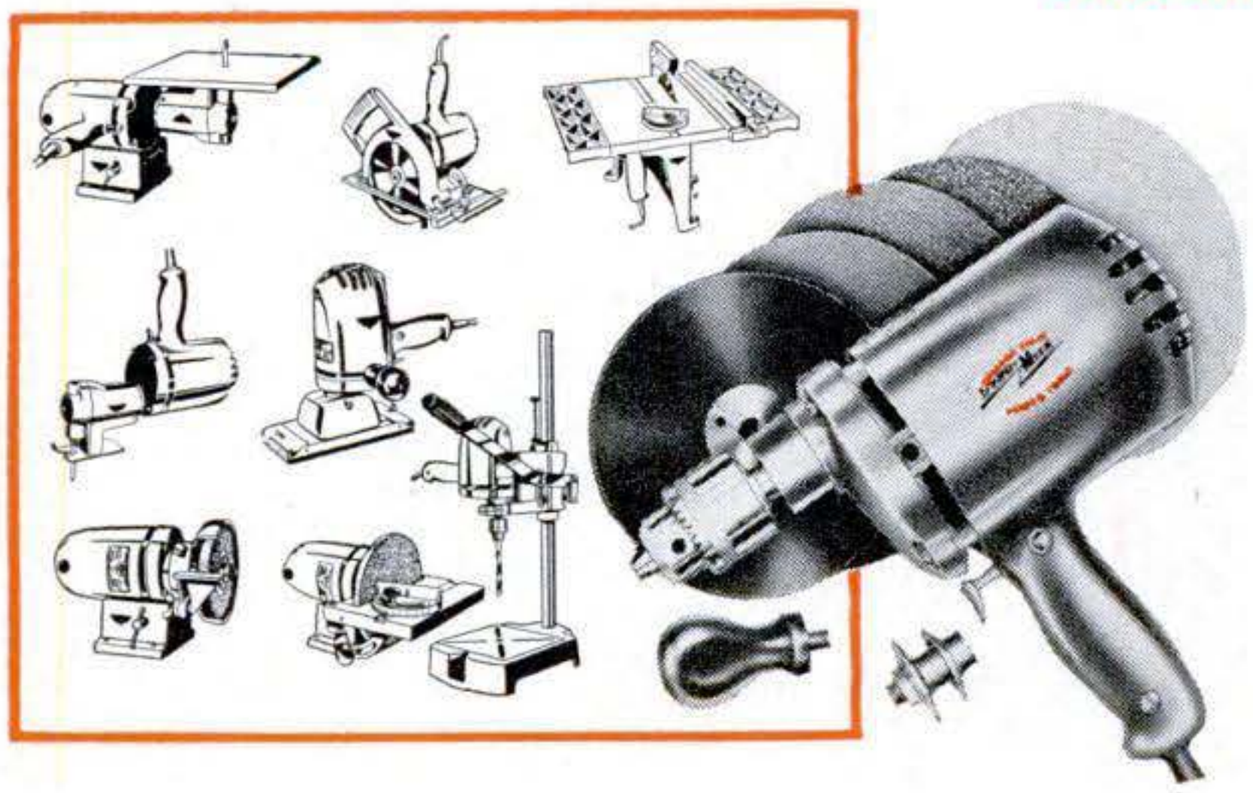


DYNO-MITE ELECTRIC SAWS are real gluttons for work. Three great models. **No. 600** — a new, economically priced 6" saw with 1⅞" capacity, **$43.50. No. 610** — a husky, heavy-duty 6" model with a ½ h.p. motor, **$59.50. No. 700** — a larger, heavier saw that cuts up to 2⅜", **$67.95.**



MOST POWERFUL DRILL of its type, this Dyno-Mite ½-inch Drill is an unbeatable buy. 3.0 amp. rating. Drills up to ½" in steel, concrete, masonry — up to 1" in wood — without stalling or overheating. Also ample power to operate hole saws up to 2⁹⁄₁₆" diameter. **No. 912, $40.95.**

DYNO-MITE POWER WORKSHOP



A sensational new multi-purpose tool that gives you the start of a complete power workshop for only **$39.95.** That's all it costs to own the No. 888 Dyno-Mite Power Unit that packs a full 1/3 h.p. and comes fully equipped as a ⅜" Drill, 6" Portable Disc Sander and 6" Polisher. Then, by adding inexpensive attachments, you can convert the 888 into a whole workshop of power tools including — an Orbital Sander, a 6" Portable Circular Saw, a Portable or Bench Jig Saw, a Bench Sander, a Bench Grinder, a Drill Press and a 6¼" Circular Bench Saw.

MILLERS FALLS TOOLS
SINCE 1868 ®

Finest Power Tools Made

Copyrighted material

TRUE TEMPER® Hammer News

NEW KIND OF HAMMER

Head won't loosen; shaft won't break

R-R-R-RIP—pulling heavy nails won't bend or break the handle of the ROCKET hammer—it's a tube of boron alloy steel. The head is locked to the shaft—can't fly off, can't even *loosen*.

WHAM—when the hammer hits a nail, the hollow shaft and rubber cushion grip soak up the shock. It's the best-feeling hammer you ever swung and perfectly balanced, too.

Cushion grip won't slip even when wet or in gloved hand. It's bonded permanently to the shaft. See the ROCKET at your hardware store. $4.35*. Write for free folder. True Temper Corp., 1623 Euclid Ave., Cleveland 15, Ohio. * Slightly higher in West

Carpenter's Apron PROFESSIONAL QUALITY **Only 39¢**

Select a True Temper hammer and get this carpenter's apron for only 39¢. High-quality duck. Chart shows nail sizes. Practical, snappy. Limited offer, get yours now at your hardware store.

TRUE TEMPER®

Finest quality in hammers, hatchets and axes · Lawn, garden and farm tools · Shovels · Shears · Fishing tackle · Golf-club shafts

Diamonds Are Where You Make Them

[Continued from page 266]

heat-resisting powder bonded to the inner wall. A thick steel jacket surrounds it when it goes into the press. The apparatus is so wired that electric current passes from the piston of the press through the contents of the cylindrical chamber. When Vilella wants, he can get a temperature of "better than 5,000° F." in his pressure chamber. He received a patent on this apparatus last November.

For diamond making, the chamber is about as big as a small thimble and is packed with carbon-containing material —burned sugar, in at least a few of the runs—"and some other things."

The cow-barn experimenters say they made their first diamonds in the fall of 1952—identifying them by tests of hardness, specific gravity, optical properties and resistance to acids. Later they delivered samples to Dr. H. F. Mark, Director of the Polymer Research Institute at the Polytechnic Institute of Brooklyn. Mark confirmed that the samples were diamonds by the test of micro-X-ray diffraction with single crystals (which was not known when Hannay and Moissan did their work).

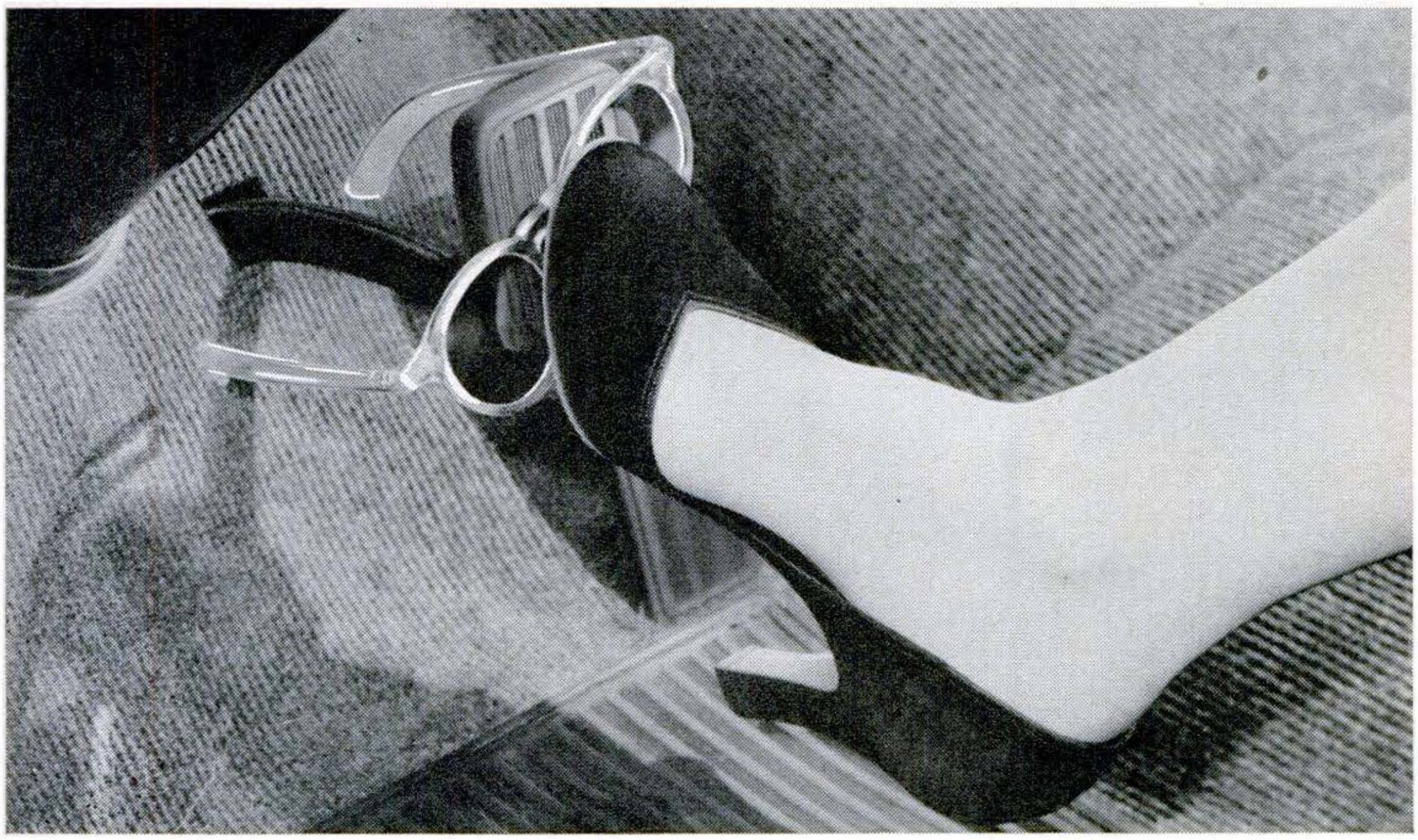
This spring Vilella and Tomarkin demonstrated in a general way how their process works. Into an aluminum tube six inches long and 1½ inches in diameter, Vilella poured a mixture of powdered nickel and red phosphorus. He slipped the tube into a steel cylinder and placed the cylinder in the press. Tomarkin started up the generator, which filled the barn with a piercing, whirring noise. Vilella turned on the press and then the heating apparatus.

The ram of the press dropped slowly, and the needle on the gauge began to climb. When it reached the point marking the equivalent of a 75,000-psi pressure, it stopped, quivered. For some seconds the ram hung motionless, then suddenly plunged down perhaps another inch—an indication that the stuff in the pressure chamber had reacted and shrunk in volume.

[Continued on page 270]

Copyrighted material

Now—your car can have modern power brakes!



NOTE: "Spectacle test" above—proves easy action of MoPar Power Brakes! To demonstrate the small amount of pressure required on brake pedal to bring car to stop—eyeglasses were first placed on the pedal. Glasses were not damaged.

STAY SAFE—with brake replacement parts that are engineered especially for your car!

Service tip: *Play safe* with brake parts that *fit right and work right* in your Chrysler Corporation vehicle! Insist on parts provided in the MoPar Master Cylinder Repair Kit and MoPar Wheel Cylinder Repair Kit!

For cooler operating, safer brakes, get MoPar Heavy-Duty Brake Fluid!

MoPar Brake Fluid provides much greater protection against brake failure caused by overheated brake fluid because its boiling point is twice that of ordinary brake fluids.

MAY IS NATIONAL SAFETY MONTH —GET A MOPAR SAFETY CHECK!

New low-cost MoPar Power Brake Unit gives faster stops with half the effort—and it's easy to install!

If your car is "dated" for lack of power brakes, here's good news for you.

Now, you can enjoy the safety and ease of genuine power brakes just like those offered in the '55 cars.

Like thousands of other motorists, you'll find that a MoPar Power Brake Unit enables you to make the fastest, smoothest stops imaginable—with half the effort you'd normally use!

Today's finest power brakes are yours at a price to fit the most modest purse. Get your MoPar Power Brakes from your nearby Plymouth, Dodge, De Soto or Chrysler dealer or better repair shops everywhere.

MoPar is the name of parts and accessories designed especially for your Plymouth, Dodge, De Soto, Chrysler or Imperial car, or Dodge "*Job-Rated*" truck.

MōPAR

PARTS DIVISION • CHRYSLER CORPORATION • DETROIT 31, MICHIGAN

Copyrighted material

GET RID of WEEDS
EASY Scotts® WAY

When it's weeding you're needing, ask your garden supply dealer about dry applied Scotts controls. Easy does it with these clean compounds . . . quickly applied with a **Scotts spreader** or scattered over the lawn with a wave of the hand from a shaker box.

4-XD® - low cost weed destroyer, a discovery of Scotts Research, it **kills Dandelions, Buckhorn, Plantain** and their ugly companions with no harm to grass.

Box to treat 50x50 feet of lawn - $1.75
BEST BUY — Big economy bag treats 11,000 sq ft - $4.85

WEED & FEED—Double witchery in this Scotts product, feeds grass to greater health and new beauty as it knocks out weeds.

Box to treat 2500 square feet - $2.95
Weed and feed 11,000 square feet - $11.75

Look for the famous orange and green grass design packages at your favorite **Lawn care®** *retailer — or drop a card to —*

O M Scott & SONS CO, *Marysville, Ohio*

Diamonds Are Where You Make Them

[Continued from page 268]

The two men threw switches. There was a sudden quiet. Vilella worked another control and a great puff of smoke filled the barn as the aluminum chamber popped out of the jacket and fell to the base of the press, where it flared brightly.

It was an eerie, almost diabolic, scene. The chemist admitted later that it need not have been so dramatic; ordinarily he keeps the chamber in the press until the contents cool. Then there is no flame.

But is there ever any danger? Vilella pointed to a row of windows 12 feet from the press. Chips from a steel pressure jacket had torn through two of them; other chips had gashed the walls.

Once the cylinder had cooled, Vilella cracked it open lengthwise with an ax head, knocked off the concretelike substance that had been the refractory powder, and exposed a rod of hard, glistening, pinkish metal. "Phosphor nickel," Tomarkin explained. "Highly resistant to corrosives. It has important uses if it can be made in quantity—and now it can be."

Using a heavier press, larger pressure chambers and more electric power, Vilella and Tomarkin expect to produce rare alloys on a commercial basis in the near future, and industrial diamonds—at a price low enough to compete with the natural product—within two years.

What about diamonds of gem size?

"You cannot help obtaining larger diamonds," Tomarkin answered, "when you have the optimum conditions under control." Said Vilella: "It's a matter of transforming *all* the material in the pressure chamber—not just some of it. We must experiment."

So the recurrent dream of laboratory diamonds seems to be coming true. But if you're looking for an engagement stone, you're still more likely to find it in a Kimberley mine. END

Net Profit

Experience: What you have left after everything else is gone.—*Hudson Newsletter.*

Copyrighted material

NOW! GO RIDING WITH YOUR SMALL POWER LAWN MOWER

$39.50 List Price

MOWER-CYCLE

Shown attached to a popular brand 18" mower

Mower-Cycle®

Pat Pending

CONVERTS ANY REEL TYPE MOWER

SIZE 18" to 30" TO A "RIDING MODEL"

Now you can enjoy the small size riding lawn mower you want! MOWER-CYCLE comes complete, ready to convert your power lawn mower to a rugged, efficient "rider." Especially designed to work with low h.p. engines. Weight of rider bears down on wheels, gives extra traction, improved performance! Fun to ride, a real wizard for work! To hook on MOWER-CYCLE, just remove old mower handle. Drill 8 holes in motor mounting plate. Fasten with nuts and bolts. Drive it away! Whether you buy a new mower, or already have one, MOWER-CYCLE converts it to a "rider." Weighs only 37 lbs. If your dealer doesn't handle, write us for free details, Dept. PS today!

E. F. BREWER CO., Butler, Wis.

Red Devil

FP33 HOME FLOOR CONDITIONER

The world's most popular style floor conditioner

Counter-rotating brushes mean perfect floor conditioning with a finger-tip touch. Eliminates all drudgery from scrubbing, waxing, polishing, buffing. Will steel wool dirt and grime from wood and all floor surfaces.

FREE How to Maintain Wood Floors. Illustrated instructions on polishing, cleaning, varnishing, waxing and sanding wood floors.

Red Devil Tools. Dept. 124
130 Coit Street, Irvington, N. J.

Please send FREE copy of "HOW TO MAINTAIN WOOD FLOORS."

NAME_____

ADDRESS_____

CITY_____ ZONE_____ STATE_____

1664

Live Outdoors in Luxury

...on the Screened-In Porch You Build Yourself with REYNOLDS *DO-IT-YOURSELF** ALUMINUM

It's quick, easy, with just woodworking tools

Make screens for your porch with simple tools like a saw, a hammer, scissors—and Reynolds *Do-It-Yourself* Aluminum. Reynolds screen frame members of good looking, non-rusting aluminum are easily cut and assembled. Attaching aluminum screening is quick and simple. Ask for Reynolds Plan No. 117—only 25¢.

Do-It-Yourself Aluminum is perfect for regular window screens. Your dealer has FREE instruction sheets. And now Reynolds offers New Do-It-Yourself Storm Sash Interchangeable with Screens!

REYNOLDS *DO-IT-YOURSELF* ALUMINUM

2493 South Third Street, Louisville 1, Kentucky

At Your Hardware or Building Supply Dealer Look for This Rack Containing

screen and storm sash sections • tubes • rod • bar • a wide variety of sheet designs • angles • fasteners • window hardware • Reynolon plastic film • trim strip • Do-It-Yourself Plans and Easi-Bild† Patterns.

REYNOLDS DO-IT-YOURSELF ALUMINUM

As Easy to Work as Wood

*T. M. REYNOLDS METALS COMPANY

†T. M. REG. EASI-BILD PATTERN COMPANY

Available in Canada

Copyrighted material

NOW... longer furnace life

with

Dura-tube

heat exchangers

the armored heart that's practically indestructible!

Won't Burn Out!

Tests show that repeated heatings up to 1200° F. have no damaging effect on this durable Janitrol construction.

BETTER THAN CAST IRON OR STEEL

BORN OF THE JET AGE. The Dura-tube heating heart is a combination of Janitrol's exclusive design and an amazing process developed for use on military aircraft parts to resist the corrosive effects of extreme temperatures. The American Gas Association permits Dura-tube operating temperatures of 1100° F. . . . 225° higher than for cast iron or steel! Learn why Dura-tube is quieter, safer and more durable.

But that's not all!

A Janitrol summer air conditioner may be added to the furnace to bring 365-day comfort to new or older homes.

Free Booklets!

Get the facts on both Dura-tube and the Win-Sum Twins. Jot your name and address below and send to Dept. P-55.

Janitrol®
HEATING AND AIR-CONDITIONING DIVISION

SURFACE COMBUSTION CORPORATION, COLUMBUS 16, OHIO
IN CANADA: ALVAR SIMPSON LTD., TORONTO 13.

[*Continued from page 147*]

finishes, but that, synchronized with the starter's pistol, set down exactly the time elapsed.

All these are useful watches. The Swiss have also made many play pieces. When Farouk was king of Egypt he had a watch filled with birds that sang. There are watches in which duelists, clashing swords, pause to indicate the hour; others with revolving spinning wheels, a blacksmith hammering at his forge, a man and a woman kissing. One of the most famous shows a shepherd under a tree playing pipes while cupids swing to and fro, a dog barks, sheep bleat, and a girl beats time on a carillon as she reads from a score.

The smallest watch the Swiss have developed is about the size of a match head. This pigmy instrument has been fitted into perfume-bottle corks, pencil ends, earrings and belt buckles. Once an African chief ordered one because he wanted a watch small enough to put into one of his gold teeth.

Although the watch of today is an extraordinary mechanism, the search for the absolute goes on—the timepiece that needs no attention, that will never lose or gain, that cannot break or stop. There are already electric and, even better, electronic watches. The tiny transistor promises an application to timekeeping. But whatever improvements the future may bring to the watchmaker's art, the Swiss intend to keep on ticking their way to world leadership. END

He Asked for It

The car pulled up to a gas station and the attendant cleaned the windshield, put in gas and oil, watered the radiator, checked the pressure of all the tires and brought cold water for the children.

"Will there be anything else?" he asked politely.

"Yes," said the woman behind the wheel. "Will you please fold my road map?"—*Pure Oil News.*

Copyrighted material

Bring your ideas to life with Weldwood paneling

Weldwood knotty pine paneling makes it easy to change an attic, basement or storage room into the cheerful work, play or guest room you see here. And see how little it actually costs!

But be sure it's Weldwood—the wide, smooth, easier to install panels which stand hard use, and have knots that are carefully selected and spaced. Finished job is better in every respect.

There's a host of other Weldwood hardwoods too—and Novoply, Weldtex and Surfwood. See them at your lumber dealer's or at any of the 82 United States Plywood showrooms in principal cities, or mail coupon.

Novoply®—$33 Surfwood®—$26 Weldtex®—$27

Weldwood®

LIFETIME GUARANTEED INTERIOR PANELING

UNITED STATES PLYWOOD CORPORATION

World's Largest Plywood Organization

New York 36, N. Y.

United States Plywood Corporation PS-5-55
Box 61, New York 46, N. Y.

☐ Please send free folder showing how to copy room above.
☐ Enclosed is 10¢ for full-color book "Beautiful Wood for Beautiful Homes."

NAME.....

ADDRESS.....

CITY.....STATE.....

Insist on the genuine original

DRILL, SAW, REAM . . . metal, pipe, wood, plastic, Transite, etc. Use with electric drill, slow drill press, lathe, milling machine. Drills own starting hole, upper part of bit is used to cut, saw, ream circles, ovals, squares, scrolls. Easy to use. Ideal for carpenters, mechanics, electricians, plumbers, hobbyists, etc. Abrasive resistant, high speed steel. Flutes ground from solid. Withstands severe continuous use without breaking. Resharpened free. Takes place of up to $50 in tools. 1" diameter, 2" cutting sections, total length 3½". Three types—All Purpose, Wood, Heavy Metal. Specify type needed. Set of three $11.50 Details on request. Shipped same day. Money-back guarantee. Dealer inquiries invited.

Order Now Send Cash, Check or Money Order to

INTERNATIONAL TWIST DRILL CORP.

618 Wyandotte, Rm. 692, Kansas City, Mo.

Only $3.95 POST PAID

Whenever you're painting, you need

SAVOGRAN PRODUCTS ... at better paint & hardware stores

Write for free helpful literature

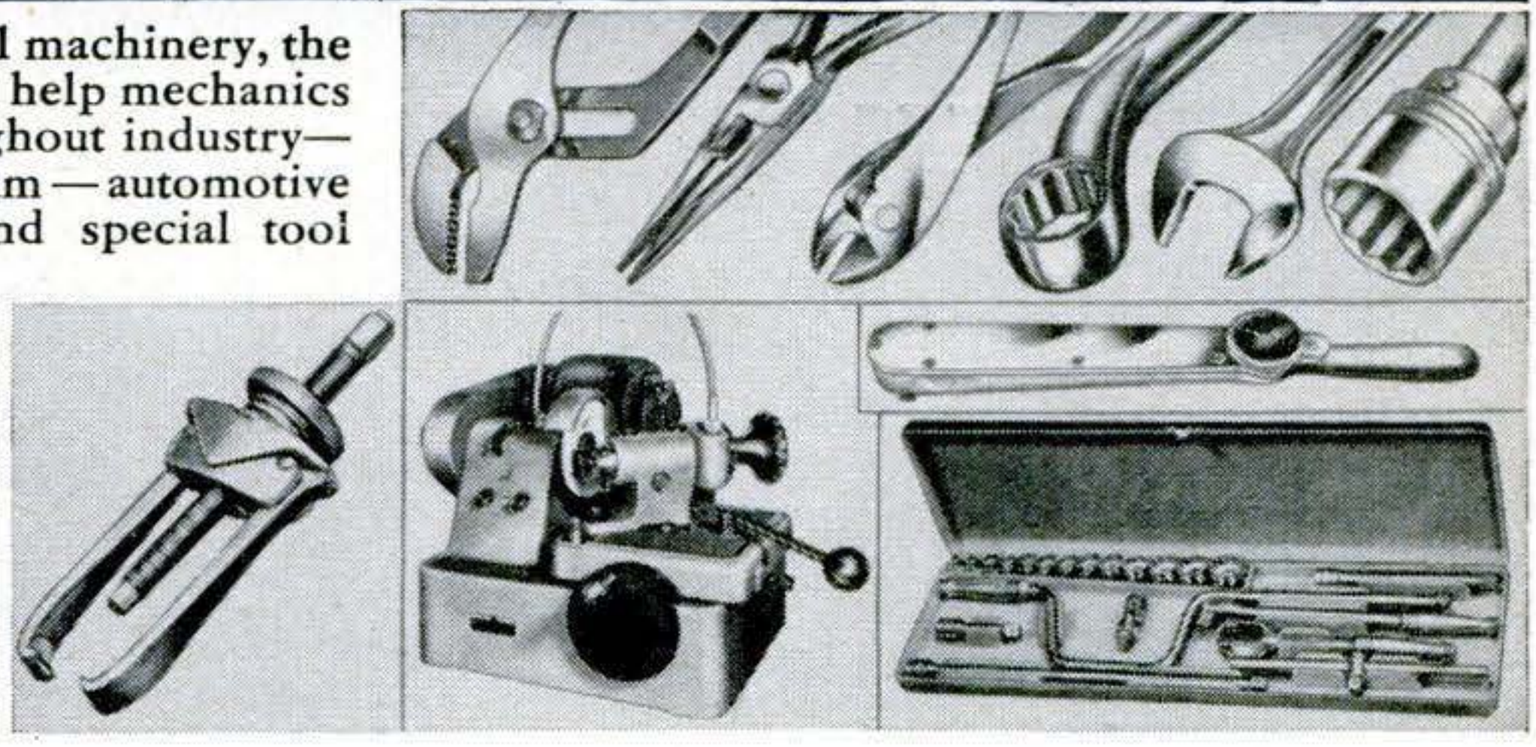
SAVOGRAN CO., Dept. 70, 125 Huntington Ave., Boston, Mass.

Snap-on Tools FOR MAINTENANCE AND SERVICE

In the maintenance of all industrial machinery, the right tools save precious hours . . . help mechanics do more and better work. Throughout industry—aviation—construction—petroleum—automotive—agriculture . . . *Snap-on* tools and special tool sets are the outstanding choice for efficient maintenance and product assembly work. They cost less to use because they last many times longer than cheap tools. Write today for free catalog of more than 4,000 *Snap-on* tools.

SNAP-ON TOOLS CORPORATION
8060-E 28th Ave. • Kenosha, Wis., U.S.A.

*Snap-on is the trademark of Snap-on Tools Corp.



Copyrighted material

HOW TO QUIET YOUR CAR

—and do "1001" jobs around the house

FREE "Tips to the Handyman" folder shows over 40 ways you can use L·O·F Super·Fine.

This handy free folder shows you how to do a variety of jobs around the house with fine-fibered, easy-to-apply L·O·F Glass Fibers Super·Fine. A few of the suggested uses include: **Hot-water tank wrap • Garage-wall insulation • Milk-box liner • Comforter padding • Shrubbery wrap • Auto tool wrap.**

Buy Super·Fine from your local hardware, lumber, or building supply dealer.

LOF GLASS FIBERS **SUPER • FINE**

L·O·F Glass Fibers Co.
Dept. 49-55
1810 Madison Ave.
Toledo 1, Ohio

Please send me, FREE "Tips to the Handyman" folder, showing how to quiet my car and make over 40 household improvements with Super·Fine.

Name _____

Address _____

City _____ Zone ____ State _____

Can Science Stop Dust Storms?

[Continued from page 165]

not helpless. He can plow his bare, dry land down six to 12 inches and bring up clods from the subsoil. Clods not only slow the wind but make nestling places for small dirt particles. The wind tunnel has shown how, by using different types of crop rotation, a soil loss equivalent to 74,000 pounds an acre can be reduced to a loss of only 970 pounds an acre.

Back at their laboratory in Manhattan, the scientists continue their studies in a second, bigger wind tunnel, 56 feet long.

Artificial barriers and shelter belts of trees and shrubs are set up inside—in miniature. In this tunnel, a solid wall, four inches high, didn't faze the wind;

All we need to do to make good drivers out of the womenfolk is to teach them to be as careful about curves when they're driving as when they're getting all dressed up.

—THE SIDEWALK SUPERINTENDENT

it jumped over and struck the ground on the other side. A wall with an opening at the bottom did more to stop the wind. By working with tiny snow fences in the tunnel, it was shown that ordinary snow fences, four feet high, spaced 40 feet apart, would reduce wind velocity by about half.

The Manhattan soil men indicate that the ideal solution would be a conditioner that makes the soil resistant to blowing. The most promising is an asphalt emulsion that is sprayed on the land. It gives complete protection, but is too costly to be practicable.

Another suggestion is that farmers make their own wind-resisting clods by mixing and pressing soil. The problem is to find the right moisture content and to develop tools. It is being worked on.

Zingg and Chepil are hopeful that, before another severe drought brings on tragic dust bowls such as those of the Thirties, their wind tunnels will come up with the right answer. END

Copyrighted material

Save that PAINT BRUSH

— *now* more valuable than ever

Perfect for NYLON BRUSHES

10c
25c

KEEP BRUSHES LIKE NEW WITH DIC-A-DOO

At Paint, Hardware, Dept., and 5 & 10¢ Stores

Patent Cereals Co. **Geneva, New York**

Lawn *Beauty's* a *Breeze* with a BOLENS

ROTARY MOWER

No pushing . . . you just guide the BOLENS self-propelled power mower over your lawn. 6 easy-starting, sturdy, safe BOLENS rotary power mowers are available in cutting widths from 18" to 21"—front, or side-trimmer models that eliminate hand trimming. Also 3 powerful BOLENS reel type power mowers.

Bolens has a mower for every need and budget. You invest in quality, style and easy lawn care when you BUY BOLENS.

GRIND-A-LEAF *attachment for Bolens gasoline rotary power mowers pulverizes leaves and eliminates raking.*

AMERICA'S FINEST OUTDOOR POWER EQUIPMENT

MAIL COUPON TODAY!

BOLENS PRODUCTS DIVISION
Food Machinery and Chemical Corporation
267-5 South Park St., Port Washington, Wisconsin

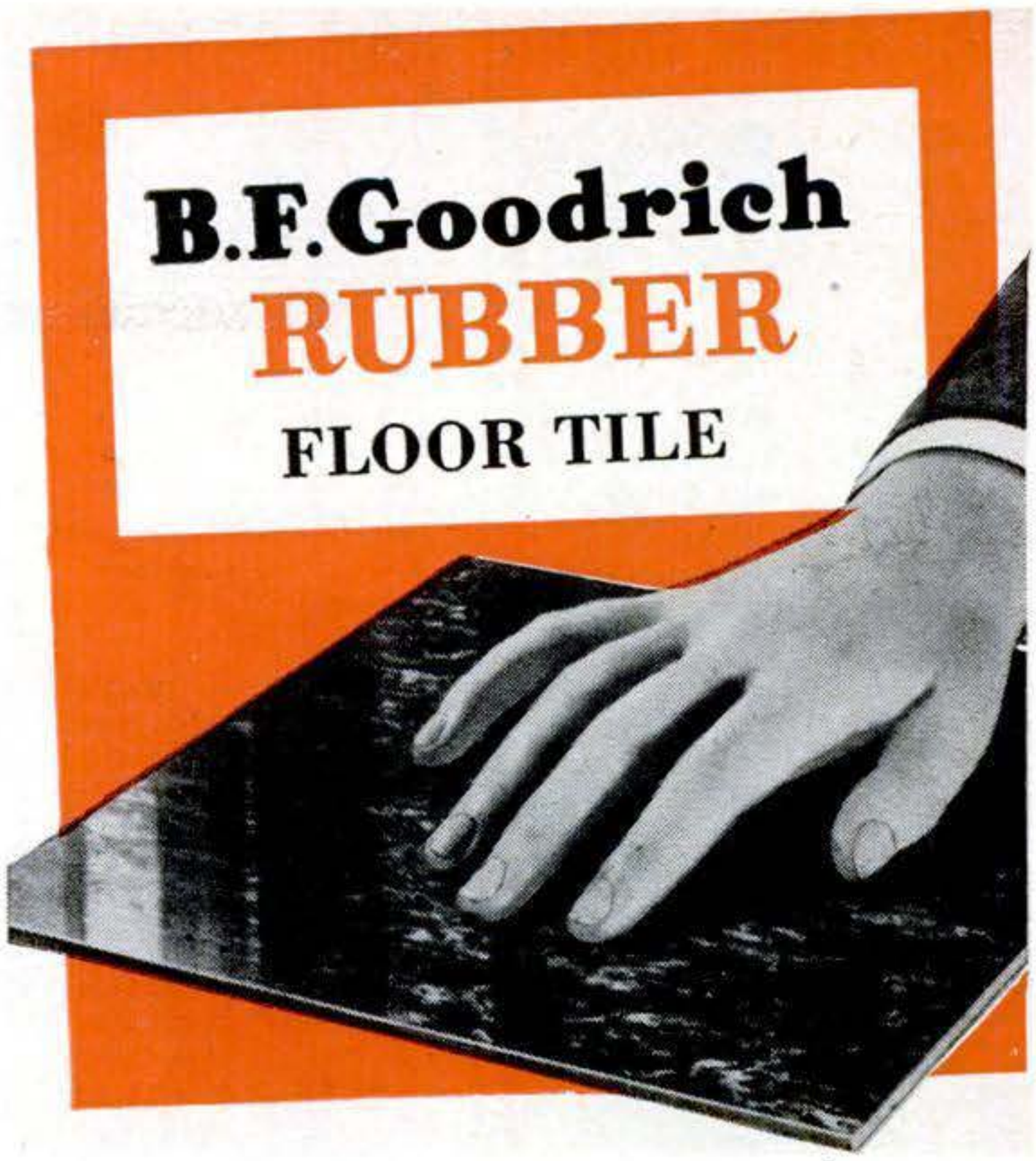
Send me literature on:

☐ POWER MOWERS ☐ TRACTORS ☐ ROTARY TILLERS ☐ CHAIN SAWS

Name_____

Address_____

City_____ Zone_____ State_____



MAKE THE TOUCH TEST

Feel how *Super-Density* — found only in B. F. Goodrich Rubber Floor Tile — provides a smoother surface! This exclusive feature eliminates dirt-catching pores, makes floors easy to clean and keep clean!

AND YOU'LL DO THIS!

Install it yourself! Use the special 80-gage household thickness and the handy B. F. Goodrich Self-Installation Kit.

Send for FREE full color folder

B. F. GOODRICH Co., *Dept. PS5*
Flooring Div., Watertown 72, Mass.

Name.....

Address.....

City.....*State*.....

Copyrighted material

to make boring jobs easier

ask for IRWIN auger bits

Irwin — the original solid center auger bit. Precision made of special bit steel. Hardened and tempered full length to stay sharp. Cuts fast, clean, accurate holes in any wood. *Sold by independent hardware dealers only.* Ask for the best — ask for Irwin auger bits.

IRWIN 62T Solid Center Auger Bit — sizes 1/4" to 1 1/2". Double-cutter type. No clogging, no binding, no chewed edges.

IRWIN Expansive Bits — two types, small and large sizes. Boring range 5/8" to 3". Drop forged, accurate, easily adjusted. Two cutters with each bit. An excellent all-purpose wood-boring tool.

FREE BOOKLET tells how to select, use, care for wood auger bits. Mail name and address on postcard to Irwin, Dept. 3A, Wilmington, Ohio, for your copy.

Irwin Bit Sets — hardwood box, or plastic rolls. 6, 10, or 13 bit assortments. Sizes 1/4" to 1". An ideal gift for the handyman.

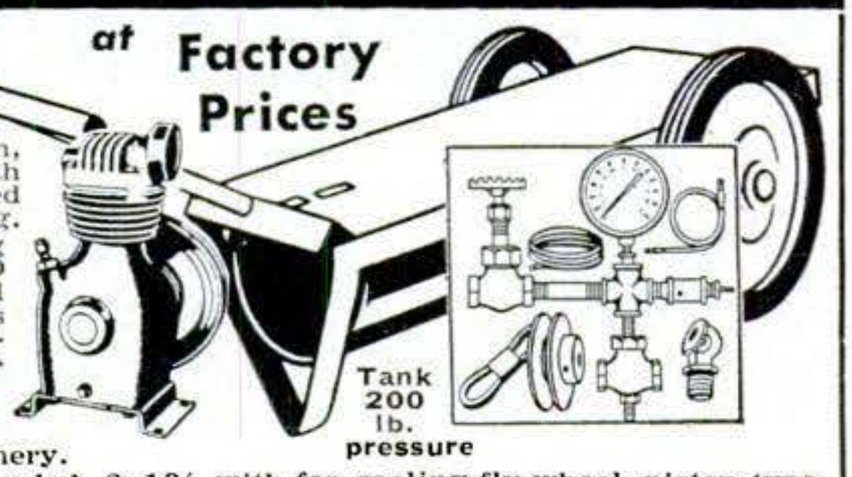
IRWIN wood boring tools

the original solid center auger bit screw drivers • screw driver bits

AIR ON WHEELS!

Model 101 at **Factory Prices**

Dim: length 30", ht. 19" Width 19". Sprays paint, enamel, varnish, lacquer, etc., with 4 times the speed of hand brushing. Also for spraying insecticides 2-4D and DDT. Ideal for inflating tires on trucks, tractors and automobiles. Ample pressure for cleaning motors and machinery.



Compressor air cooled, 2x1 3/4 with fan cooling fly wheel, piston type, 3 rings, positive lubrication, 2.8 C.F.M. at 100 to 125 lbs. pressure. Chassis with ample storage tank 6 1/2x20", 200 lb. test mounted on 12" ballbearing wheels with semi-pneumatic tires. Removable handle for easy moving. Can be carried in auto. Complete with check valve, Relief safety valve, Globe valve, Air gauge, 20 ft. air hose, with tire chuck, Belt and motor pulley, Drain cock, 4-way cross, 3 nipples, Tubing with brass fittings. Motor required 1/4 or 1/3 H.P.

No. 101—Reg. price $110. Wt. 70 lbs. FACTORY PRICE.. **$57.50**

NO. 101-A—Same as No. 101 with 2 1/2 x 2" compressor. Motor req. 1/2 h.p. 4.9 C.F.M. Wt. 75 lbs. FACTORY PRICE **$67.50**

101-AA—Same as No. 101 except has 2 cylinder, 2 1/2x2" compressor. Motor req., 3/4 or 1 h.p. 9.6 C.F.M. Wt. 100 lbs. FACTORY PRICE..... **$87.50**

BOTH UNITS CARRY 1 YR. Factory Guarantee

NO. 102: Same as 101 with carrying handle for stationary or portable use. Complete outfit as described and illustrated, wt. 34 lbs., reg. $85 value. FACTORY PRICE **$39.50**

102-B: Same as Offer A, but with 2 1/2 x 2 compressor, 4.8 CFM, wt. 42 lbs. (motor required 1/2 or 3/4 H.P.) regular $110 value..... **$48.50**

102-C: Complete outfit, tank and accessories shown above, less compressor (wt. 20 lbs.)..... **$21.75**

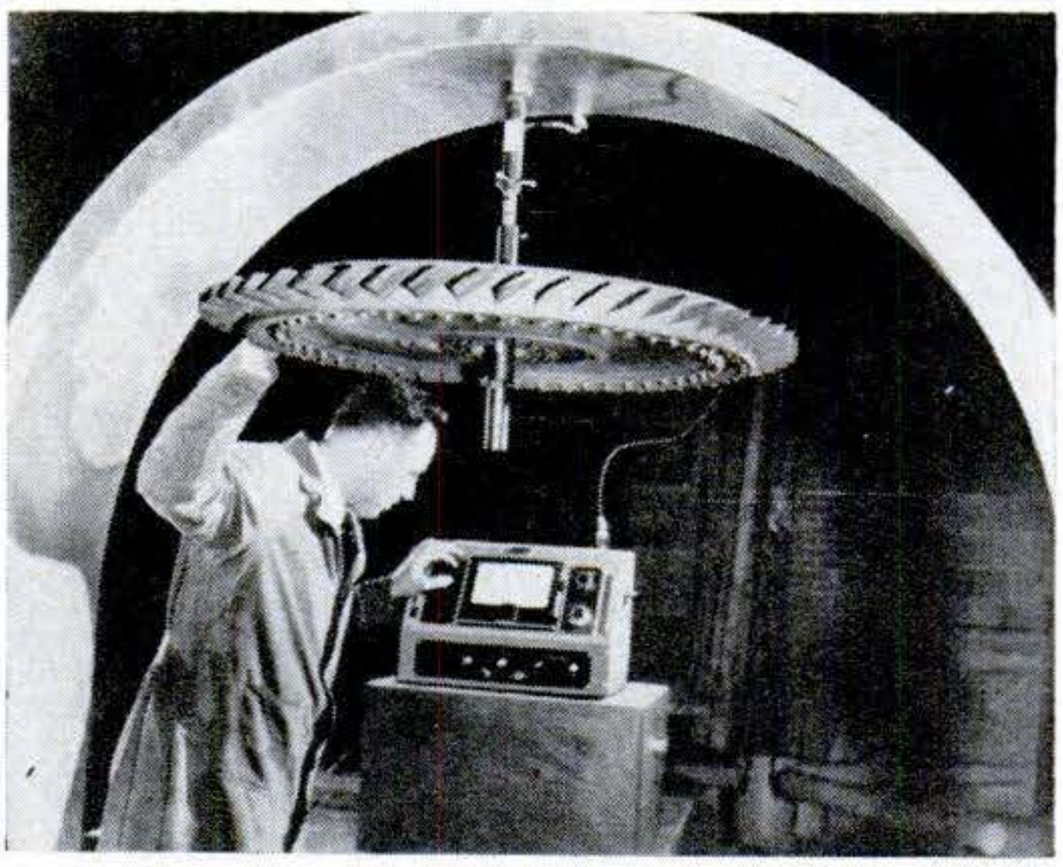
102T: Tank also sold separately, wt. 12 lbs. **$9.25**

Air on wheels, larger sizes. Free folder. Order from this ad. Sold on money back guarantee. F.O.B. Chicago. Send check or money order.

ILLINOIS MFG. & SUPPLY CO.
1831 S. STATE ST. DEPT. PS 5 CHICAGO 16, ILL.

Water Tests Turbine Blades

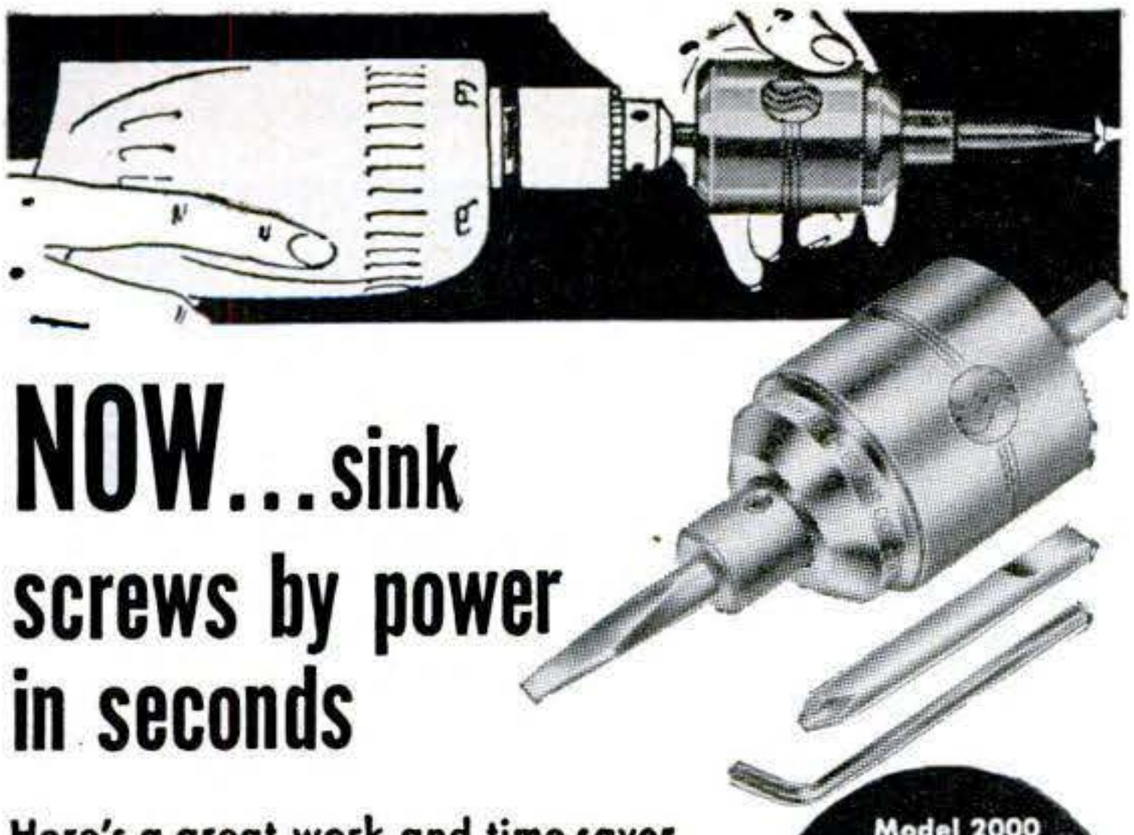
WATER gushing from a transparent nozzle lets automobile engineers study the performance of turbine-blade shapes and settings for torque converters and automatic transmissions. The plastic nozzle also allows high-speed photos to be taken as the water flows over the blades. The device is used by General Motors.



Machinists Get New Balancer

THIS workman is checking the balance of a machine rotor. Deflections of the vertical shaft, measured by electrical strain gauges, show up in inch-ounces on the dial to pinpoint locations where more weight is needed. The tool was developed by Baldwin-Lima-Hamilton Corp., Philadelphia.

Copyrighted material



NOW...sink screws by power in seconds

Model 2000 $6.95

Here's a great work and time saver for amateur or professional mechanics. Attach a Supreme Screw Driver Attachment to your ¼" (or larger) capacity power drill, and sink screws faster than it takes you to read about it. Recommended for all screws up to ¼" dia., and for both hard and soft woods. Makes assembly of woodworking projects a snap. Another fine tool by the makers of Supreme Brand Chucks . . . America's new favorite. Included are slotted screw bit, Phillips' head bit, and Allen wrench. Also complete instructions. See your hardware dealer or order direct. Send $6.95 in check or money order. Also Supreme Light Duty Model #3000—3/16" cap. $4.95. Postage prepaid. Satisfaction guaranteed.

®

SUPREME PRODUCTS, INC.
2220 So. Calumet Ave., Chicago 16, Illinois

SHEET METAL BRAKES

Forms angles, locks, pans, etc. New eccentric clamps. All steel construction. Size 15"—16 gauge steel, $21.50; 36"—22 ga. $33.00; 48"—24 ga. $48.00. Floor Stand, $7.00

Hand Press Brake. Forms any length up to 12" from edge . . . $38.00
Folder 15"-1/4" to 1"—24 ga. . . $16.50. 36"—28 ga. $36.00
12" Reach 12" wide Bending Tongs 36" long . . . . . $ 9.50
Bench, or portable shear, 7"—16 ga. steel $12.50

(Immediate delivery. Order cash or C.O.D., or send for folder)

VYKE MFG. CO., 2433 15th St., Denver 2, Colo.

WELD IT YOURSELF IN A JIFFY!

Weld, Cut, Braze, Solder

IRON, STEEL, BRONZE, BRASS, ALUMINUM & OTHER METALS

Tool and Equipment breakdowns are always annoying and costly. Don't let them bother you. Get a Dynamic Arc Welder. You can do expert work on your very first job. Welders operate from any properly wired 110 V. AC line. Also make your own wrought iron furniture, railings, fences & knick-knacks. Repair fenders, & bodies etc. with the handiest "tool" in your workshop. A Dynamic will pay for its low cost of $38.50 F.O.B. in both time and money.

EASY PAY PLAN

Low down payment. Pay as you weld. Sold on money-back guarantee. Send for details. Complete outfit only

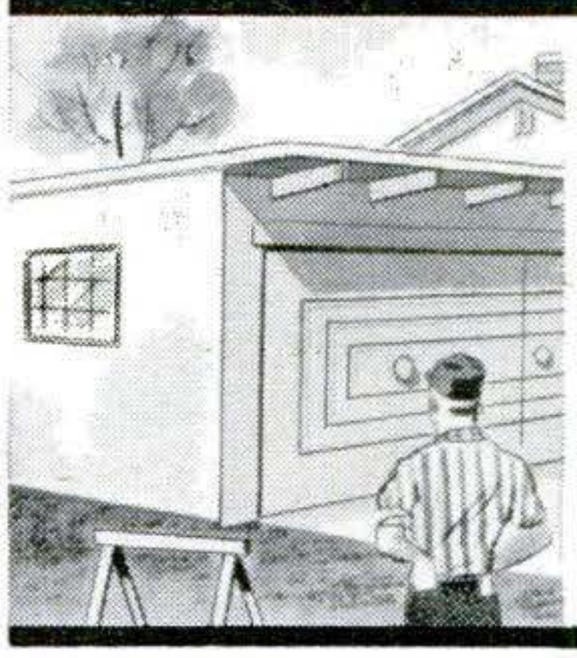
$38.50
f.o.b. factory

DYNAMIC INDUSTRIAL type transformer Arc Welder 75 amp. output for Industrial or Workshop use.

DYNAMIC WELDER CO.
Dept. D3-E, 1808 S. Federal St.
Chicago 16, Ill.

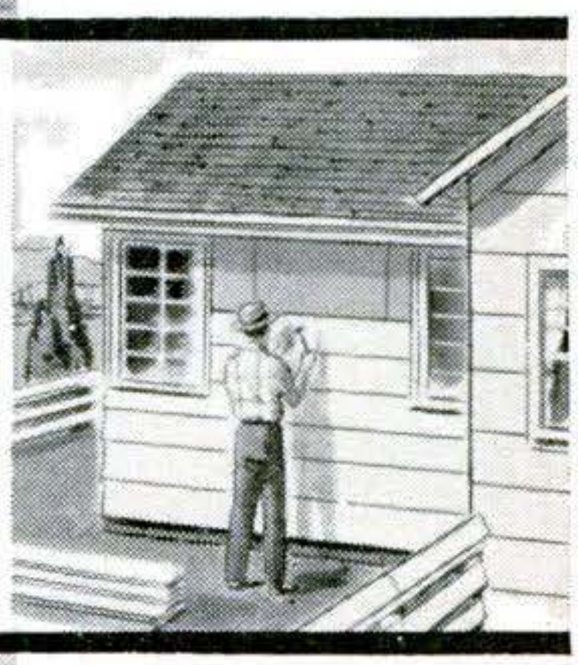
Free Details and "How to Weld"

have fun— get a beautiful job— it's easy with upson panels



Convert Your Garage • Make it into a snug garage with super-strong Upson All Weather Sheathing. Just nail All Weather Panels to studs and paint them. They give protection and insulation value, too. Every fiber waterproofed. Mail coupon for FREE details.

New! Upson Primed Siding • Finish remodeling with beautiful Upson Primed Siding. Comes in 16' lengths. Pre-primed at factory. One finish coat covers perfectly! Strong, straight - edged Upson Primed Siding adds a lifetime of beauty to your home. Easy to apply! See your dealer.



Fun Room • Upson Panels do the work. Bar: Strong - Bilt squares, beveled. Wall: Upson Striated Panels, painted two-tone for striking effect. Ceiling: Upson Ceiling Tiles. Easy to apply. Waterproofed, wipe clean. Beautiful finished job, lasts a lifetime. Send coupon.

All Upson Panels are easy to work. They saw clean, and paint beautifully. Available many sizes, thicknesses, surfaces. Over 45 years' experience and huge output keep price low. Upson quality assures you beautiful finished job. See your lumber dealer, insist on "Upson."

45th Year

FREE DETAILS, MAIL COUPON

PROVEN QUALITY YOU CAN TRUST UPSON

The Upson Company
5125 Upson Point, Lockport, New York

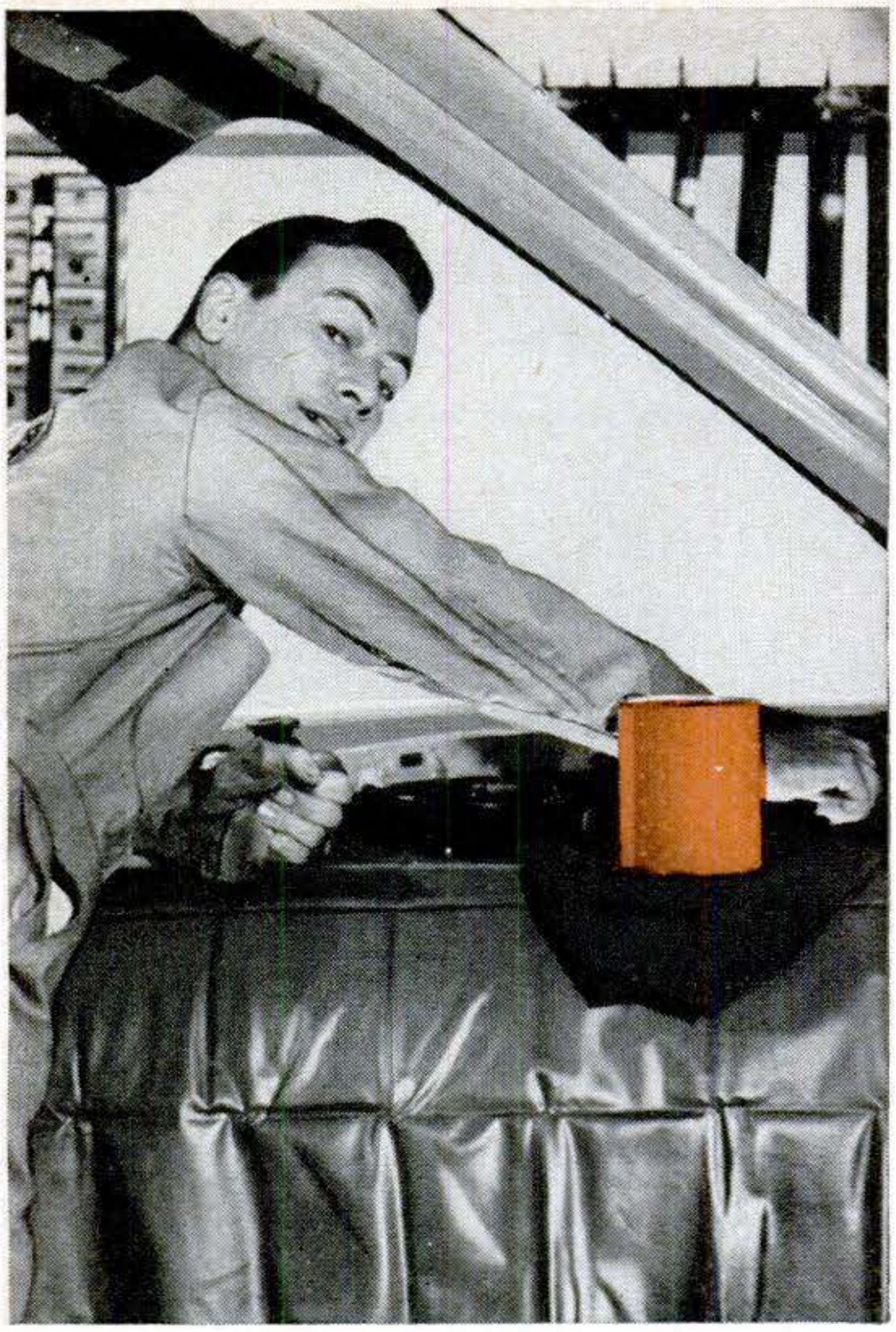
Please rush FREE details on _____
(TYPE OF PANEL)

NAME _____

ADDRESS _____

CITY _____ STATE _____

Copyrighted material



Motorists prefer FRAM more than 2 to 1

Surveys prove it . . . and in many cases the preference for FRAM Oil Filters more than equals the preference for the *next two most popular brands combined!*

Here's why: FRAM is engineered for *extra-high* filter efficiency . . . *keeps* oil clean, cuts wear, saves power and reduces repair bills.

There's a FRAM Cartridge engineered for your car. See your FRAM Dealer today!

Send FRAM boxtop or 25c for big, colorful, 68 page *Vacationland America* Book describing motor trips throughout America!

FRAM OIL • AIR • FUEL • WATER **FILTERS**

FRAM CORPORATION, Providence 16, R. I.
Fram Canada Ltd., Stratford, Ont.

ROTO-HOE

Pleasant Power Gardening You Can Afford

Enjoy garden preparation and cultivation as well as the results! Your ROTO-HOE will do the hard work for you, give you more leisure time **and** a better garden.

This famous 2 h.p. rotary tiller will till and prepare soil and cultivate between the rows. ROTO-HOE owners by the thousands are "AMERICA'S HAPPIEST GARDENERS." And, best of all, ROTO-HOE costs only $134 complete. Many "customer-proven" attachments do extra jobs, all are low in cost. Get all the facts today.

FREE CATALOG, in full color, sent on request, along with nearby dealer's name. Write today.

START YOUR OWN BUSINESS

If you're handy with tools, you may be able to start a profitable part- or full-time business selling and servicing ROTO-HOEs. Write for details.

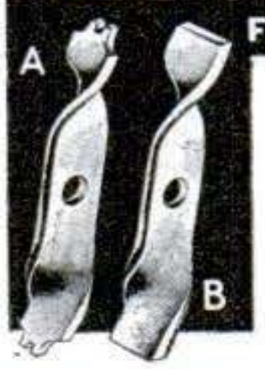
ROTO-HOE & Sprayer Co., Box 18, Newbury, Ohio

"America's Leading Manufacturer of Lawn & Garden Equipment."

Guaranteed original equipment Replacement Auto Parts . . . at Western Auto

USE YOUR BENCH SAW

FOR JOINTING & CUTTING MOULDINGS



With our six inch tool steel cutters you can make beautiful mouldings for picture frames, furniture, and house construction. Cutters as shown,

DIRECT FROM FACTORY!

One inch wide—$1.98; 1½ inch wide—$2.49 ea. Postpaid. Guaranteed. List & Folder free. State hole size.

JOHN A. SANDSTROM
Rt. 2 P. Clearwater, Fla.

2 GREAT AUTO BARGAINS

NEW KING MIDGET for 1955, lower priced, improved performance. Drive it for 75¢ per week. Rider agents wanted, earn your own car. Also just out **King MidgetJunior** chassis, finely engineered, ready to run, and priced at less than the retail cost of parts. Agents wanted. Get all the facts—send 25¢ for literature, special prices and proposition on both cars, or $1 (refunded first order) for this plus actual assembly book and service manual.

MIDGET MOTORS MFG. CO., ATHENS 2, OHIO

Copyrighted material

For easier work, better results— use these high quality

D-P COMPOUNDS!

D-P Glazing Compound

D-P Caulking Cartridge

- For glazing all sash—wood or metal.
- Perfect for dozens of additional home repair jobs—filling nail holes, cracks, etc.
- It's white—easy to handle—seals permanently!
- Finest caulking compound made—packed in handy 1/10 gallon cartridge with applicator tip.
- Designed for use in standard or half-barrel caulking guns.

At hardware, paint and building supplies stores. D-P means Dicks-Pontius—and that means high quality!

THE DICKS-PONTIUS COMPANY • Dayton, Ohio
Alexandria, Va. • Decatur, Ga. • Dallas, Tex.

---

3 CU. FT. MIXER DIRECT FROM MFR. 39.75

Fills long felt need for small mixer for concrete, feed, fertilizer, seed and many other materials. Saves 3/4 cost of ready mixed concrete. Pays for itself on first job. Combination belt pulley and crank for hand operation. Also power mixers. Write for circular.

3 Cu. Ft. Drum—Mixes 2 Cu. Ft. Concrete $39.75
5 Cu. Ft. Drum—Mixes 3 Cu. Ft. Concrete 59.50

FOB Pulaski, N. Y. Cash, Check or M. O. Money back guarantee.

UNITED STATES FORGE AND FOUNDRY CO.
CONSTRUCTION EQUIPMENT DIV. PULASKI, NEW YORK

BOAT KITS

OVER 60 MODELS for 1955
Inboard or outboard—Dingies to cruisers—8-21'—World's most complete line of real performance boats. Advanced design—modern styling—finest materials—easier to assemble! $49.50 up.

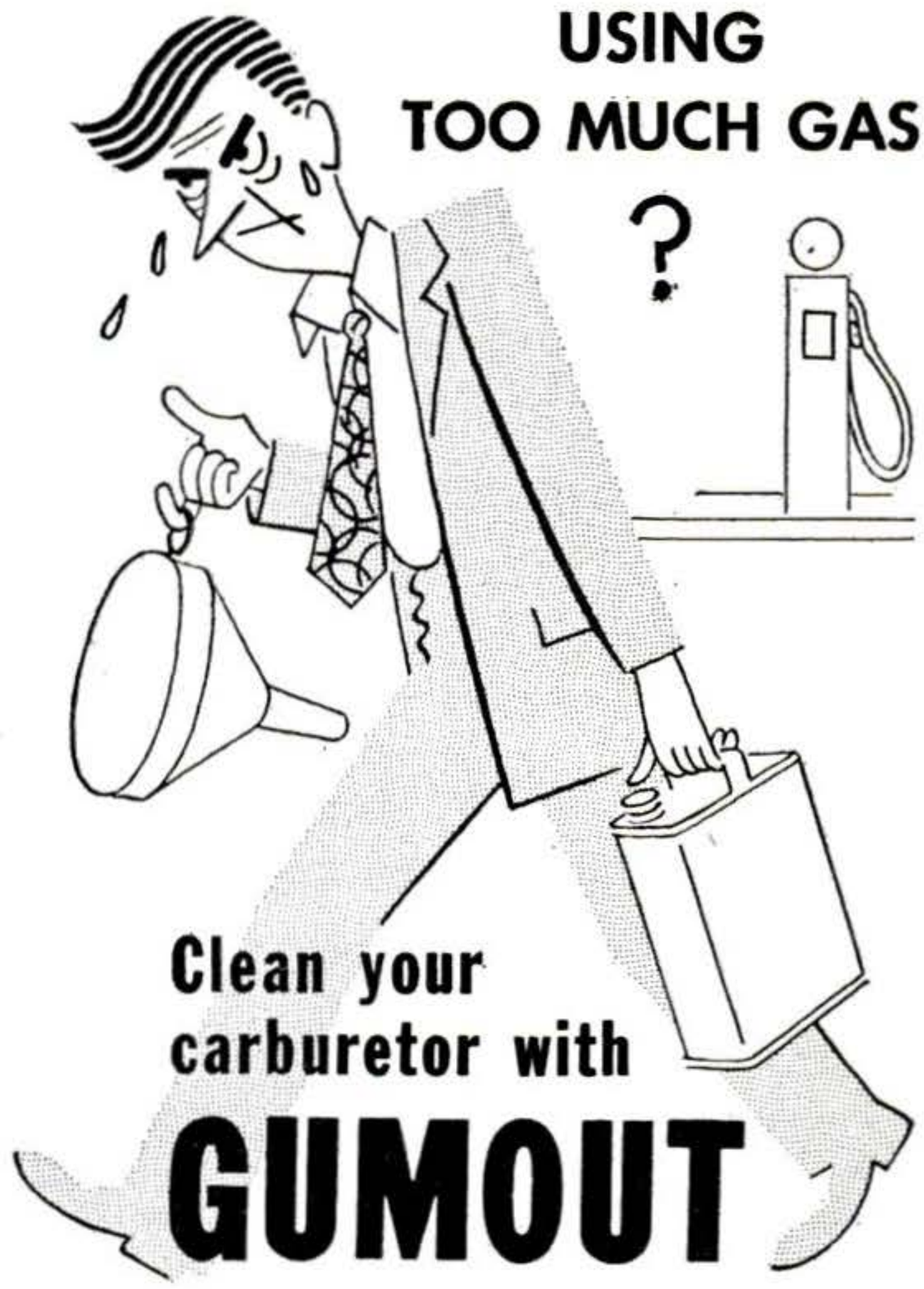
SEND 35c for 1955 CATALOG
40 pages—includes hardware, paint, fittings, trailers, Armor-Glass, etc. SPECIAL OFFER: Catalog plus valuable book "Boat Selection, Operation, Maintenance" $1.00.
(DEALER INQUIRIES INVITED)

BOAT PLANS

OVER 150 MODERN PLANS WITH FULL-SIZE PAPER PATTERNS
Build your boat the modern way—the easy way, with Custom-Craft patterns. Save time-money. Material lists, building procedure included. Racing classes-cruisers-inboards-outboards-sailboats, etc. 6-36'-plywood or planked. **SEND 35c for DESIGN CATALOG** or send $1.00 for design catalog plus boat building handbook . . . explains the A-B-C's of boat construction.

CUSTOM-CRAFT • DEPT. 5 • BUFFALO 7, N. Y.

USING TOO MUCH GAS ?



Clean your carburetor with GUMOUT

One big cause of high gas consumption is a dirty, gummed-up carburetor. When tiny gas and air passages become clogged, the fuel-air ratio is upset. The carburetor *can't* function right. And there is no adjustment you can make to compensate for dirt and gum! The carburetor must be cleaned!

But—the carburetor doesn't have to be taken apart to clean it!

GUMOUT does the job for you—while you drive. Just add GUMOUT to your gas tank every two or three months, and you'll keep your carburetor sparkling clean. There's nothing like GUMOUT.

Send for FREE 46-page Carburetor Handbook. Gives you all the answers. Good to have.

POWER MOWERS and OUTBOARDS need GUMOUT, too. Winter storage and infrequent use are sure to cause gum formation in the carburetor and fuel system. Hard starting, stalling, and rough idling results. GUMOUT dissolves the gum, cleans out the fuel system . . . *fast.*

GUMOUT is sold by service stations, garages, auto supply dealers, and hardware stores *everywhere.*

GUMOUT DIVISION
Pennsylvania Refining Company
2670 Lisbon Road, Cleveland 4, Ohio

Copyrighted material

From the start of the job to the finish...

CHAN NEL LOCK

TRADE MARK REG U S PATENT OFFICE

pliers are busy

here's why

Look for the Channellock line when you're shopping for hand tools. Channellock pliers offer features that you can't get with other makes. And when you buy a Channellock plier, ask to see the full line — you'll find a style and model to do any job better.

Swif

New 50/50 Solder and Flux in paste form

Easier to apply, works faster and cleaner. Do small jobs with heat of a match. One tube makes hundreds of joints.

At Hardware counters ..... **59¢**

a HERCULES product

NOW - THE QUICK-WAY TO SHARPEN ALL CIRCULAR SAWS

NEW

Model PG-12 Complete No extras to buy. **$16.50** Postage Paid

Model PG-12 sharpens, joints, gums, and retooths all cross cut, rip, combination, miter, and planer blades up to 12" in diameter. Two precision index plates give versatile, accurate sharpening. Guarantees precise spacing of teeth. New safety rest prevents tilting and gouging of blade. Save time and money. Special $3.00 grinding wheel also included for use on your own power table. Fits regular or radial swing tables.

Order today. Send check, cash, or money order. We pay postage.

QUICK-WAY SAW CO.
100 Hornby Drive, Painted Post, N. Y.

WELD **BRAZE** **SOLDER** **CUT**

4 WAY WELDER

ONLY **$14.75** f.o.b. factory

Acclaimed by thousands of Homeowners, Mechanics and Hobbyists as the welder of 1001 uses. Easily operated from properly wired 110 volt AC or DC line. **The ideal gift with a life-long use** . . . Order today on 10 day money back guarantee.

Complete with Twin Carbon Arc Torch and accessories . . . to handle all metalcraft work.

FOUR-WAY WELDER CO., Dept. F3-E
1810 S. Federal St. • Chicago 16, Ill.

18 OUTDOOR FURNITURE PROJECTS

Clearly illustrated plans by outstanding designers. Step-by-step plans make it easy to build practical, attractive porch and lawn furniture at low cost. See your dealer or order direct. ONLY **50c** (65c outside U.S.A.)

ATLAS PRESS COMPANY
525 N. Pitcher St., Kalamazoo, Mich.

A PRECISION LEVELING INSTRUMENT *for only* $12.95

With the New LEVELALL one man can do the work of two men and a transit, quickly, easily, accurately. All alone you can speedily level points for footings, forms, piping, batter boards, sills, lintels, floors, ceilings, roads, driveways, lawns — any type of construction work. Send for Free booklet or, better yet, order a DeLuxe Levelall today.

Name _____

Street _____

City _____ *Zone* _____ *State* _____

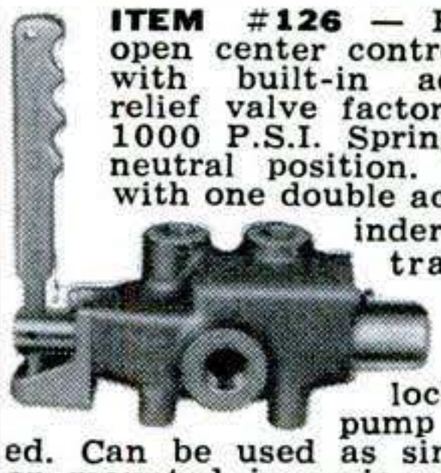
☐ Mail 75' DeLuxe Levelall @ $12.95 ☐ Regular 50' model @ $9.95 ☐ Ship postpaid full price enclosed ☐ Ship C.O.D. Money-back satisfaction guaranteed.

LEVELALL 81-E Webster Street, Rockland, Mass.

Copyrighted material

SHOP by MAIL and SAVE at GROBAN'S — SURPLUS SALE — ALL ITEMS Brand New!

GROBAN FOUR-WAY OPEN CENTER HYDRAULIC CONTROL VALVE



ITEM #126 — Four-way open center control valve, with built-in adjustable relief valve factory set at 1000 P.S.I. Spring loaded neutral position. For use with one double acting cylinder. In neutral position cylinder is locked and pump unloaded. Can be used as single unit or mounted in series. Has 3/4" pipe thread inlet and outlet. 1/2" pipe thread cylinder ports. Finger grip handle. Ship. wt. 10 1/2 lbs.

AN OUTSTANDING BUY!

F.O.B. Chicago **21.50**

BELT DRIVEN A. C. GENERATOR

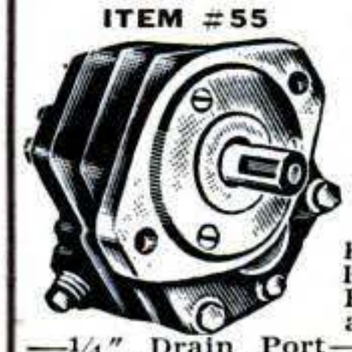
ITEM #700

Ideal for powering electric tools, oil burner, refrigerator, lights, or other appliances requiring up to 700 watts of power. 700 watts, 115 Volts, 60 cycles A.C. 3600 R.P.M. Compact, self-regulating generator with V Belt pulley and double outlet receptacle. Rotation counter-clockwise. May be driven by tractor or auxiliary gasoline engine. Requires 2 HP minimum. Dimensions: 10" long x 8" high x 6" wide. Shipping wt. 27 lbs.

F.O.B. Chicago..... **59.50**

MULTI PURPOSE HYDRAULIC PUMP OR MOTOR

ITEM #55

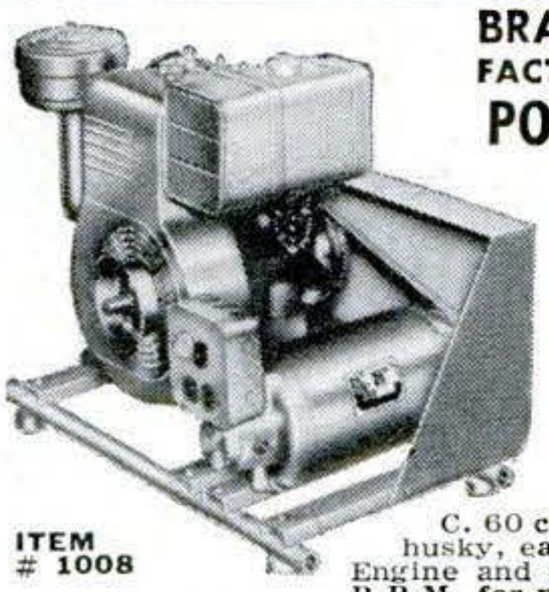


Silent, high efficiency, Helical Gear Type Ball Bearing, Hydraulic Pump or Motor. Rated 8 Gal. Per Min. At 1500 R.P.M.—delivers 1000 P.S.I. Using 6 H.P.—Reversible Rotation—3/4" Pipe Thread Inlet and Outlet Ports—1/4" Drain Port—3/4" shaft with keyway and flat for either direct or pulley drive. Dimensions—5 3/8" high, 7 1/4" long, 5 1/8" wide. Shipping weight 18 lbs.

F.O.B. Chicago **45.50**

FREE NEW CATALOG

52 PAGES, chuck-full of unsurpassed War Surplus Equipment Bargains for farm, home, factory, workshop. Write letter today.



ITEM # 1008

BRAND NEW 1955! FACTORY-TO-YOU-VALUE PORTABLE ELECTRIC LIGHT PLANT

POWER TO OPERATE:

- **8" Electric Saw, Electric Drills, Pipe Bender.**
- **Refrigerator, Deep Freezer, Incubator.**
- **Water Pump, Radio, Lights, Air-conditioner.**

COMPACT—FITS IN THE TRUNK OF YOUR CAR. 1000 watts output, continuous duty. 115 Volts A. C. 60 cycles, 9 amps. Powered by husky, easy starting Clinton engine. Engine and generator operate at 3600 R.P.M. for maximum efficiency at minimum weight. Both units are mounted on welded base, with heavy sheet metal belt guard. Generator is self-regulating and is equipped with outlet box containing fuse and 3 A.C. convenience receptacles. Cost only 5c an hour to operate. Dimensions: Length 20 1/2", Width 15 1/2", Height 16". Shipping wt. 100 lbs. F.O.B. Chicago.... **149.50**

Brand New! 5-TON BLACKHAWK HYDRAULIC LIFT KIT

Now Only **38.95** Complete

THE COMPLETE KIT

For—• Dumping farm wagons • Adjusting depth of plows • Hydraulic press • Hydraulic jack • Snow plows.

Item No. K-116-B

KIT CONSISTS OF:

1—Brand new Blackhawk Model P-151—Hydraulic hand pump with built-in oil tank and release valve. Rated from 1200 P.S.I.—to 8400 P.S.I. 20" handle. Dim. 8"x6"x6". **Item #82.....22.50**

1—6 Ft. length double wire braid rubber covered hydraulic hose—tested to 20,000 lbs.! **Item #27B4.....3.95**

1-Hydraulic cylinder, 2" bore, 6" stroke, husky 1" solid steel shaft, will lift 10,000 lbs., using pump pressure. Standard clevis mounting. May be used for double action service. **Item #41C1C.....12.50**

2-Qts. non-foaming hydraulic fluid.....1.00

All necessary hydraulic fittings.

Total ship. wt.—40 lbs.

COMPLETE KIT PRICE..... **38.95**

ALL OF ABOVE INCLUDED F.O.B. Chicago

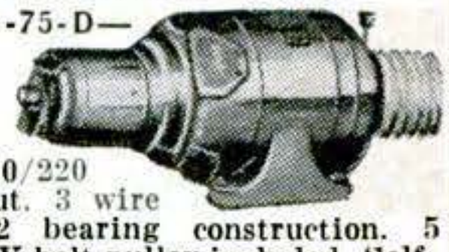
GROBAN HYDRAULIC SPEED REDUCER with FINGERTIP CONTROL

ITEM 115

USE FOR: • Reamer Drives • Midget Cars • Feed Mills • Canning Machines • Conveyors • Lathes • Milling Machines • Motor Boats • Cream Separators • Garden Tractors • Pumps. Variable output speeds from 0 to input speed available by moving control handle. Locking handle maintains setting. Use input power of 1/4 to 1 1/2 H.P. Shafts 5/8" diam. Input rotation counter-clockwise facing shaft. Input speed 750 R.P.M. 7 1/2"x7 1/2"x 11 1/2". Gov't acquisition cost $428.00. Shpg. wt. 31 lbs. Complete with 2 qts. of oil and full instructions. F.O.B. Chicago..... **54.50**

To place phone orders call WEbster 9-3793

A. C. ELECTRIC GENERATOR



ITEM #G-75-D—7 1/2 K.W. (7500 WATTS) single phase 110/220 volt output. 3 wire system, 2 bearing construction. 5 groove 6" V belt pulley included. Self-excited. Foot mounted. Drive generator from tractor or stand by engine. Ample power for 6 room house. Dimensions: 34"x11 1/2". Shipping Wt. 420 lbs.

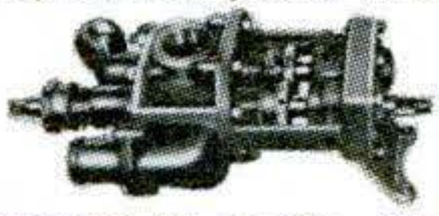
F.O.B. Chicago..... **295.00**

Complete control box for these generators includes A.C. rheostat, automatic voltage regulator, field rheostat, and voltmeter, already wired and ready to connect to generator. List price $167.00. Our Price..... **56.45**

SELF-PRIMING ALL BRONZE & MONEL GEAR PUMP

ITEM #383—USE FOR:

• Sprinkling • Irrigation • Insecticide Spraying • Sump Pump • Fuel Transfer • Home Water Systems • Dewatering • Salt Water, Chemical, Acid Pumping



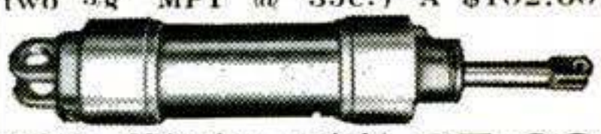
FEATURES • Needle Bearing Construction • 1 1/2" Pipe Thread Inlet, 1 3/4" Hose Outlet • Standard 3/4" Keyed Shaft • All Bronze Body & gears, Monel Shaft • Equipped with Drain Cocks, Grease Cup, Steel Internal Drive Gears for long, trouble free service.

CAPACITY: From 10 to 80 Gal. Per Min. At Speeds from 550 to 2400 Rev. Per Min. Using from 1/2 to 6 Horse Power. For Pressures to 60 lbs. Ship. Wt. 58 lbs. U. S. Navy Cost $168.00.

F.O.B. Chicago **39.50** Ea. Two for 75.00

DOUBLE ACTION HYDRAULIC CYLINDER

ITEM #31C—3 1/2" bore, 11" stroke. Alloy steel cylinder wall. Micro-Honed and all steel 1 1/8" diameter piston rod. 19 1/2" overall length closed. Clevis mounting at base and shaft. Will lift 9625 lbs. with 1000 PSI Pump Pressure. Uses 3/8" tubing fittings. (Fittings to pipe thread: two 3/8" MPT @ 35c.) A $102.00



value. Shipping weight 11 lbs. FOB Chicago... **25.00**

ORDER DIRECT FROM AD
SATISFACTION GUARANTEED
Send Payment Or Purchase Order Today

GROBAN SUPPLY CO. Dept. PS-5
1139 S. WABASH AVE., CHICAGO 5, ILL.

MAGNETS 225 lb. PULL

GENUINE ALNICO—NEVER WEAKENS

AMAZING, PERMANENT MAGNETS—WILL NOT WEAKEN! NON-ELECTRIC

Retrieve guns, tackle, tools and other steel items from lake, river, plating tanks, drains or other hard-to-reach spots. Recover drills, taps, etc. from sweepings. Clear alley of harmful tacks, nails. Many other uses. Pays for itself quickly. GUARANTEED. Try any magnet one week. Money refunded if you are not well pleased.

No. S-725 (Weighs 54 oz.) Has pull of 225 lbs. on steel block **$15.00**
No. S-625 (Weighs 70 oz.) Has pull of 125 lbs. on steel block **$ 8.50**
No. S-575 (Weighs 18 oz.) Has pull of 75 lbs. on steel block **$ 6.00**
No. S-500 (Weighs 13 oz.) Has pull of 50 lbs. on steel block **$ 4.00**
No. S- 30 Hobbyist assortment of six small magnets.....**$ 1.50**

Send Money Order or check. We pay postage. No C.O.D.'s.

MIAMI MAGNET COMPANY. 3240 N.W. 27th Ave., Miami 42, Fla.

PREVENTS RUST!

3-IN-ONE, unlike most ordinary household oils, actually prevents rust. No wonder 3-IN-ONE outsells all other home lubricants!

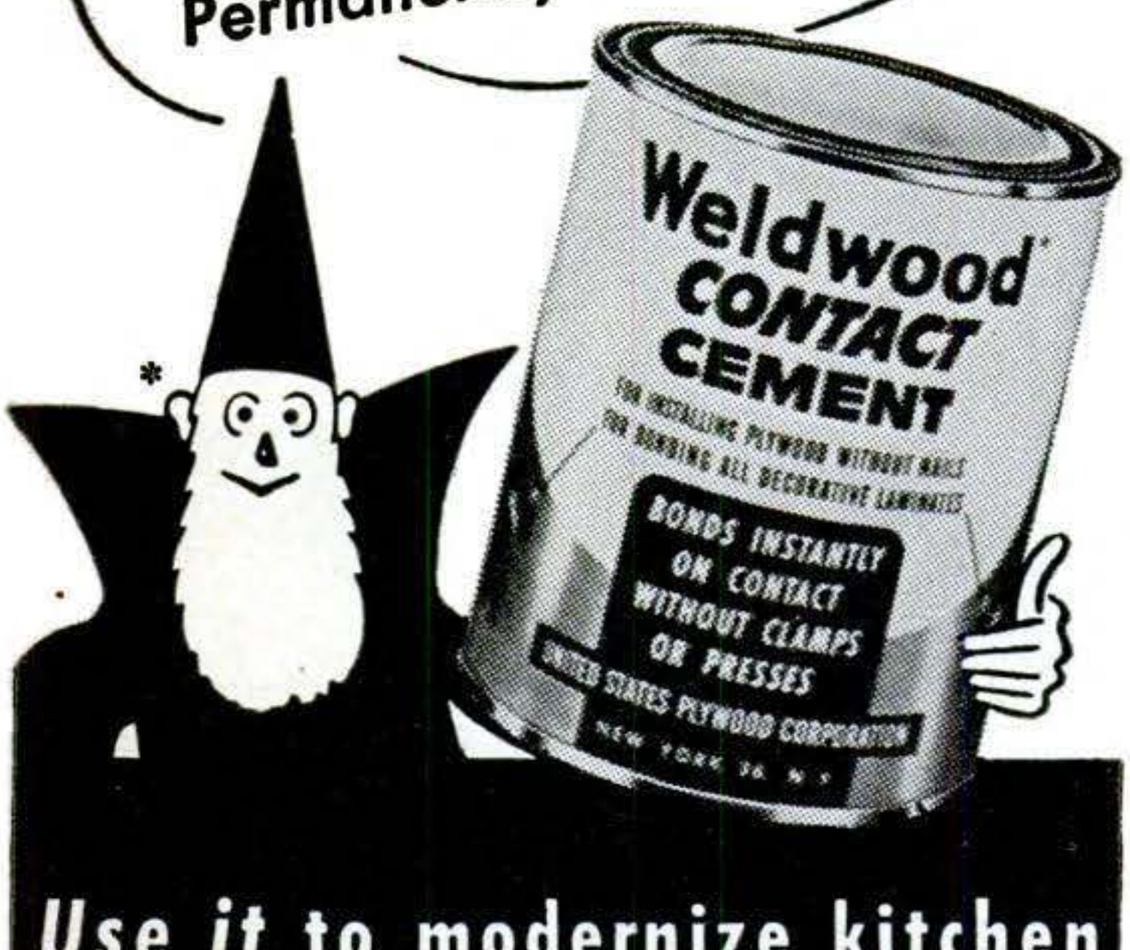
"3-IN-ONE" OIL®

Copyrighted material

AMAZING ADHESIVE DISCOVERED!

Glues without presses, clamps, nails!

New Weldwood® Wizard Bonds Instantly... Permanently on Contact!



***Use it* to modernize kitchen counters, table tops, etc. with Micarta and other plastics quicker, easier than ever before!**

Weldwood Contact Cement works like magic! No need for clamps or presses. Just apply... let dry... then bring laminate and surface together! Instantly you get a permanent bond!

PUT UP PLYWOOD WITHOUT NAILS! Do it yourself with Weldwood Contact Cement. Revolutionary new method —faster, easier. No nail holes to spoil finished surfaces!

1001 JOBS MADE EASIER around home, shop, garage. Weldwood Contact Cement bonds any combination of wood, glass, leather, paper, cloth, fiberglas, metal (including do-it-yourself aluminum).

In tubes, bottles, cans. 25¢, 35¢, 60¢ and larger sizes at hardware, paint and lumber dealers, and variety stores. Mail coupon for leaflet!

*Trademark

United States Plywood Corporation
Dept.101, 55 W. 44th St., N. Y. 36
Please send me information on Weldwood Contact Cement.
Name_____
Address_____
City_____ Zone____ State_____

Save $40!

First to fit ¼" drills, this rugged portable jig-saw attachment has same capacity & precision as $55 saws. Does work of **jig, keyhole, coping, crosscut, rip, band & hacksaw!** Built-in "Air-Jet" blows away sawdust. Guaranteed to cut intricate patterns—however large—in plywood, plastics, metals—even cuts **2x4's!** Starts inside holes without boring. Converts to **Table Model** with **"ARCO STAND"** Sturdy Casting **$2.75** 6 Extra **Blades $1.95**

SOLD AT BETTER HDWE. STORES. If not available, try this amazing tool on our **UNCONDITIONAL 10-DAY MONEY BACK GUARANTEE.** Send check or M.O. (ppd). C.O.D.'s—plus post.

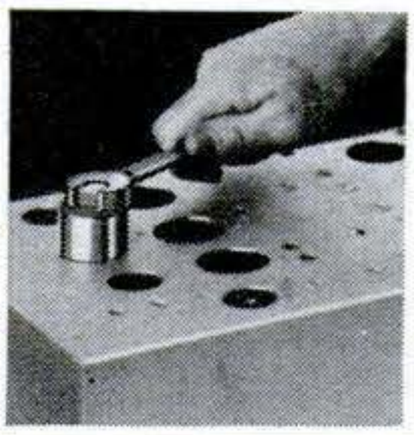
ARROW METAL PRODUCTS CO.
Dept. PS-5, 140 West Broadway, New York 13, N. Y.

NEW "WIZARD" *TOOL* DRILL GRINDING GUIDE

MAKE OLD DRILLS LIKE NEW...

For repointing dull and broken twist drills up to ½" in diameter. One piece cast Aluminum. Simple. Anyone can use it. Order yours to-day. $1.00 postpaid.

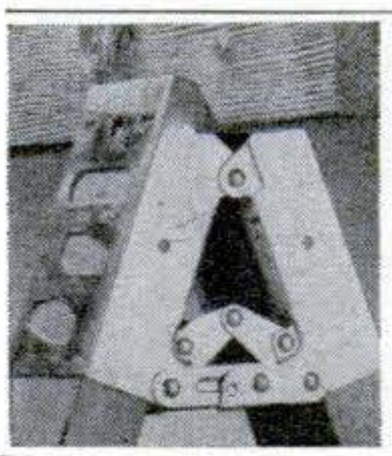
BRASS CASTING CO.
P. O. Box 3056 Memphis 9, Tenn.
$1.00 POSTPAID



CUT RADIO CHASSIS HOLES IN 1-1/2 MINUTES OR LESS

Quickly make accurate round, square, key, or "D" openings . . . in metal, bakelite or hard rubber . . . with GREENLEE Radio Chassis Punches. Simply turn with a wrench. Many sizes. Write for details. Greenlee Tool Co., 2125 Columbia Avenue, Rockford, Illinois.

GREENLEE



LATEST DEVELOPMENT

Chesney

self-contained saw-horse bracket clamps

ZINC PLATED STEEL. FITS ANY 2x4. 12 GRIPPERS ACTUATED BY LEVER. FOR TABLES, BENCHES, SCAFFOLDS. AT HARDWARE STORES OR SEND $3.95 PER PAIR TO CHESNEY INC., 720 TOWNE AVE., LOS ANGELES 21, CALIFORNIA

SHAW DU-ALL TRACTORS

rake - bulldoze - plow
cut trees - cultivate
saw wood - mow

You just steer!

1½ to 5 H.P. walking tractors breeze through work. Variable speeds, run between or astride rows. Powerful 5, 8, 12 H.P. Riding Tractors. All wanted tools. Send for FREE CATALOG, low prices.

SHAW Manufacturing Co.
5705 Front Street, Galesburg, Kansas
668-PS North 4th Street, Columbus, Ohio

Copyrighted material

Make BIG SAVINGS With FACTORY-DIRECT PRICES!

UP TO 50% SAVINGS ON SPECIAL PURCHASE-HEVI DUTY STEEL SHELVING

You can buy this for less than you can build in wood! Ideal for garage, basement, workshop, etc. storage. Fireproof, easy to move and relocate. Comes ready to assemble, with nuts and bolts. Each unit consists of five 12" shelves (36" long) with four 84" high legs. Shelves easily adjustable on 1" centers, up or down. Should sell for $22.....our price ONLY.....**$13.95**
Other units in stock: 18"x36"x84". A $35 value ..... ONLY **$17.95**
24"x26"84" A $39.50 value.....ONLY **$21.95**

Prepaid Shipment On Orders For 2 Or More Units!

ELECTRIC WINCHES—Direct-to-you Prices

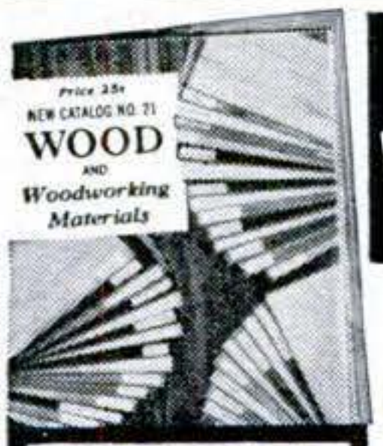
¼ HP master gearhead driven winch with drum. Will lift 500 lbs. Pull 1100 lbs. **$98.00**
½ HP Electric Ball Bearing. Compact gear box. 12 RPM drum speed.....**$165.00**
¾ HP, same as above. More lifting power, greater speed **$185.00**
Super-duty ¾ HP Ball Bearing, with 24 to 1 worm gear reducer. Length 36", Width 26". Height 17". Pull 3500 lbs. Complete with 100 ft. of aircraft cable, up-and-down buttons **$245.00**
(All electric motors Heavy-Duty. Repulsion-Induction. Instant Reverse. 110 V single phase. 3 phase available). Complete Stock of Limit Switches, Magnetic Brakes, Magnetic Reversing Switches, Aircraft Cable
CABLE ¼" pre-formed aircraft cable.....**17c** ft.
3/16" pre-formed aircraft cable.....**12c** ft.

Here are only a few big $ $ $ savings! More in our Catalog!

Air Compressor	Electric Motors	Hand Truck	Rubber Cable
Air Tank	Electric Switches	Hydraulic Cylinder	Rubber Wheels
Block and Tackle	Elevator Drawing	Hydraulic Stacker	Saw Tables
Blowers	Elevator Incline	I Beam Trolley	Shower Sprays
Bomb Trailer	Fans, Exhaust	Lawn Mower	Starters
Buzz Saw	Fans, Heat Booster	Sulky	Tools
Compressor Accessories	Fire Extinguisher	Magnetic Starter	Transformers
Clutches	Gas Engines	Mall Chain Saw	Whiting Hoist
Conveyors	Generators	Mall Grinder	Wilton Vise
Delta Tools	Grinders	Pumps	Winch, Electric
Drop Cords	½ Ton Wagon	Reduction Gear	Winch, Hand
Electric Hoists	Hale Fire Pump		4 Wheel Trailer

Get this catalog! 88 pages, packed with useful charts, information, plans for dummy & incline elevators, more than 1100 tool and equipment items at money-saving, factory-to-you prices. Send 25c (refund with first order) or write on company letterhead for free copy.

C&H ELECTRIC MACHINE Co. Inc.
438-E W. Juneau Ave., Milwaukee 3, Wisconsin



Get This NEW Catalog of WOOD & WOODWORKING EQUIPMENT

WORLD'S LARGEST SELECTION OF FINEST DOMESTIC AND IMPORTED WOODS . . . MOULDINGS, HARDWARE, TOOLS,—ALL AT LOW MONEY SAVING PRICES!

Your complete wood buying guide and project book. Craftsman is your best, most complete source of finest kiln-dried domestic and rare imported woods, beautiful wood inlays, colorful bandings, matched plywoods, embossed mouldings, carved ornaments, newest woodworking tools, "hard to find" cabinet hardware and fittings. . .more than 1,500 items! Packed with newest scroll saw patterns, project ideas & money making plans. Enclose 25c (refunded with first order) to help pay mailing, handling cost. Write now!

148 PAGES
Many in full color
packed with rare, fancy & imported woods ... veneers, plywoods, patterns, tools, ornaments, hardware ...everything for the woodworker.

Craftsman Wood Service Co., Dept. B-55
2729 S. Mary Street - Chicago 8, Ill.

File Saws for PROFIT...

BeMaCo Rapid Saw Filer

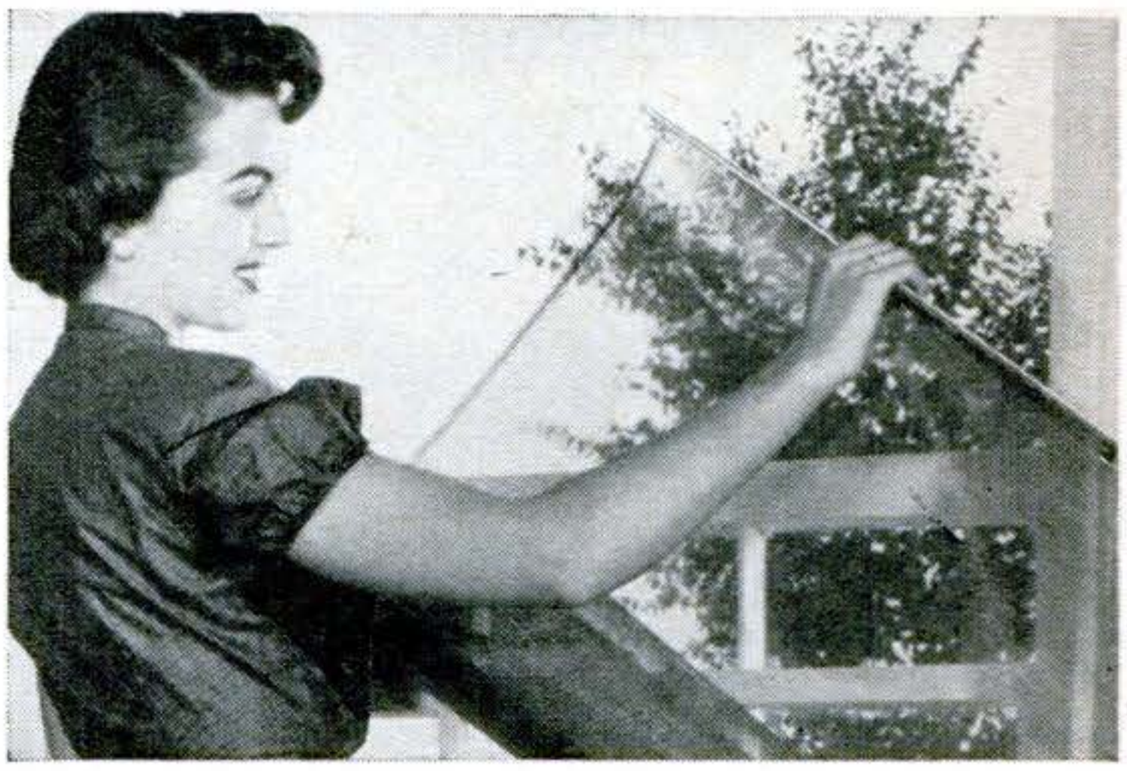
Make way for more business, increased profits with the **BeMaCo** Rapid Saw Filer. You can file more hand saws **faster** with **better** control when you use this easy-to-operate power filer. Engineered right . . . Priced right! ***Write for details—today!***

Immediate Delivery! Order Today!

Hand Saw Division 16-S

BEAVER MFG. CO.
800 ISIS AVENUE • INGLEWOOD, CALIF.

SCREENS you put up from inside in seconds

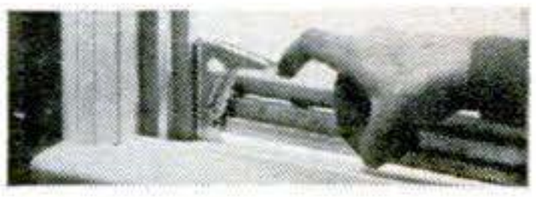


Columbia-matic TENSION SCREENS

Columbia-matics fit outside the window, just like ordinary screens, yet they go up from inside. They are the revolutionary new screening idea that saves you time and money and lets you say good-by to old-fashioned screen troubles.

Columbia-matics are flexible, full length; need no side frames, just a top rail and spring-loaded bottom rail that holds screen tightly at all times.

Easily installed the first time—anyone can do it. They come in exact sizes, no fitting. All you need is a screwdriver. Rustproof aluminum* needs no painting, ever. Available with regular or Kaiser Aluminum Shade Screening.



Two patented tension locks anchor bottom rail securely to sill. Press down, they're locked. Flip up, screen swings free. No hardware on sill to snag clothing.

*Available with galvanized screening in certain western states.

Columbia-matics cost no more than ordinary screens. Millions now in use. Get the facts at your screen dealer's. Or mail coupon.

The Columbia Mills, Inc.
Dept. **PS-55** Syracuse 1, New York

Send facts on Columbia-matics

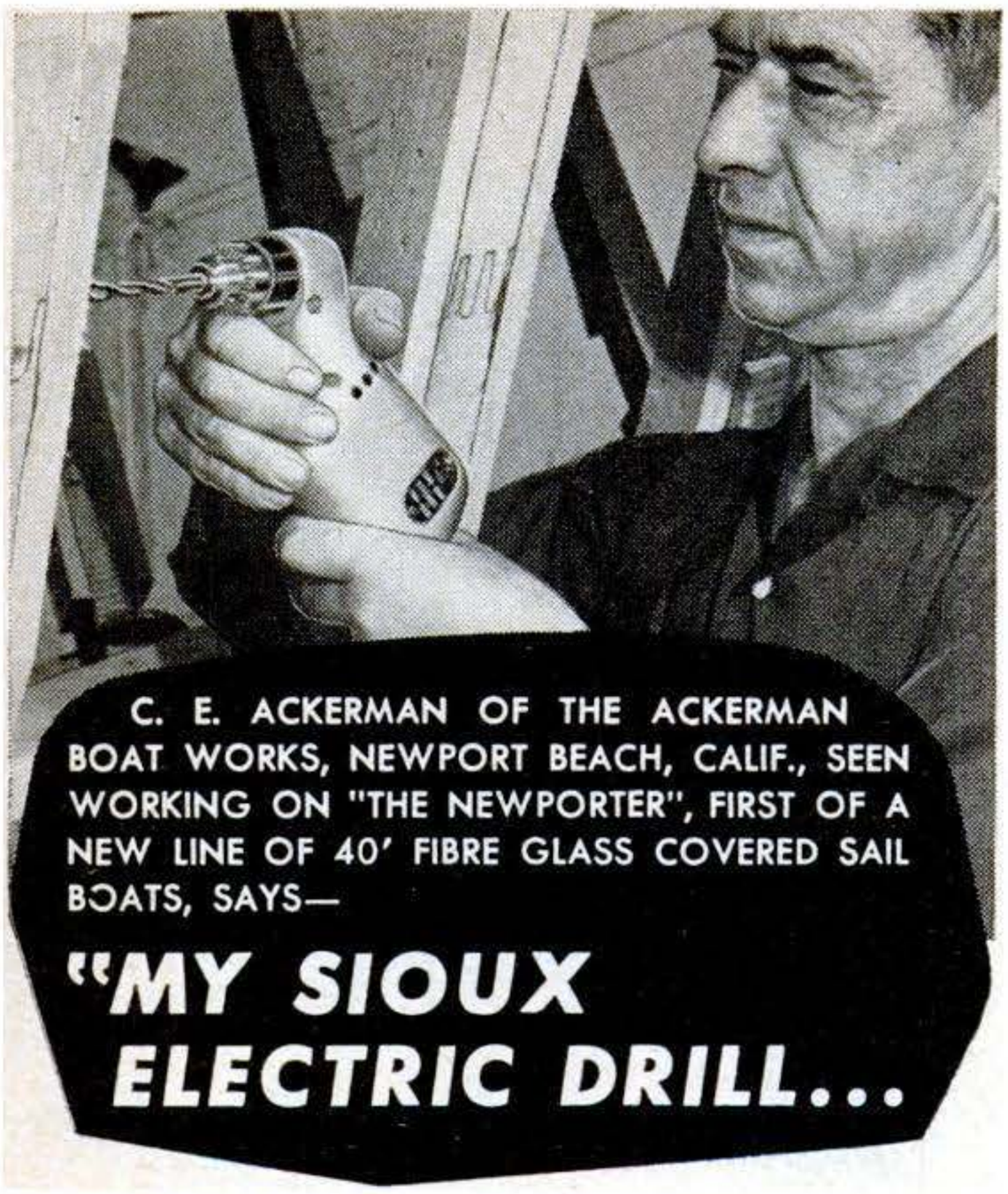
Name_____

Address_____

City_____ Zone_____ State_____

In Canada write: Cresswell Pomeroy, Ltd., Montreal 28

Copyrighted material



C. E. ACKERMAN OF THE ACKERMAN BOAT WORKS, NEWPORT BEACH, CALIF., SEEN WORKING ON "THE NEWPORTER", FIRST OF A NEW LINE OF 40' FIBRE GLASS COVERED SAIL BOATS, SAYS—

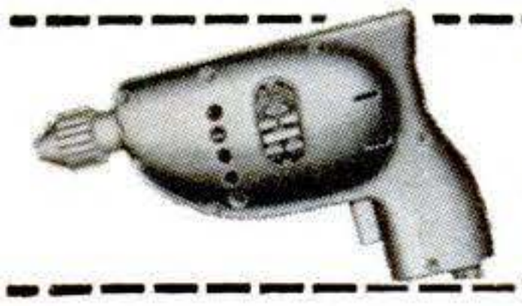
"MY SIOUX ELECTRIC DRILL...

. . . has given me such outstanding service, I feel that I owe the manufacturer a letter of appreciation.

"I purchased one of your ¼" all angle drills* in 1945, at which time, I also purchased two other Nationally known name drills. The SIOUX Electric Drill has given continuous service since, and the first service work it has needed, is a set of brushes. The original brushes started arcing badly last week. The two other drills purchased at the same time, after several major overhaul jobs, gave out completely three or four years ago.

"In case you wish to use this letter in any way you feel it may be beneficial, please feel free to do so, and I would like anyone reading it to know that it was not, in any way, asked for or solicited."

***SIOUX ¼" ALL-ANGLE DRILL, No. 1495, $37.90**



¼" ELECTRIC DRILL

- Small design • Full Powered
- Light weight • Permanently Lubricated • Pistol Grip

No. RC-1885—$22.95

ORBITAL ACTION FLAT SANDER

Working at 4,000 cycles per minute produces finest finish on wood, metal, fibre—anywhere hand sanding is usually employed.

No. RC-1850—$45.80

HEAVY DUTY ELECTRIC SAW

Saw through 2x4's at a 45° angle with more blade to spare than with most 6" saws . . . that means more sharpenings, longer use from each blade! Modern, rugged, powerful!

No. RC-1806—$74.50

THE TOOLS THE PROFESSIONALS HAVE USED FOR OVER 40 YEARS.

Write for NEW Catalog →

ALBERTSON & CO., INC.
SIOUX CITY, IOWA, U. S. A.

500 POWER! 50 — 100 — 300 — 500X

Our new quad turret microscope is the most powerful ever placed on the market at this low price. Brilliant optics, four precision optically-ground glass objective lenses, plus optically-ground glass ocular lens (eyepiece) An amazingly versatile, precision-built instrument, it is already a popular favorite in schools and colleges throughout the country. Covered by a money-back guarantee, it is shipped to you postpaid with slides, fitted hardwood cabinet and manual . . .

$14.95 postpaid

FREE

Just published! The new '55 catalog of the most outstanding microscopes and accessories ever offered anywhere at such low factory-to-you prices. Included with your order or — write for your free copy today!

10-Day Money-Back Guarantee
Send check or money order. 1/3 deposit on C.O.D. California resident add 3% state tax.

PRECISION OPTICAL CO.
11 Precision Bldg., 4379 Sunset Blvd., Los Angeles 29, Calif.

Also ADULT 2 Passenger "Eshelman" SPORT CAR
1/5 the cost of any other auto
70 Miles per Gal.
Free Catalog

RAKES
PLOWS
CULTIVATES
HARROWS
HAULS
SPRAYS
SAWS
DOZER
MOWS
CUTS
ROLLS
TILLS
SNOW
PLOW

ESHELMAN FOR Better LAWNS And GARDENS

1 to 8 H.P. Also Tillers & Walking Tractors
Low as $69

Women can operate it. Free Catalog. Write ESHELMAN, Dept. R-45, 109 Light St., Balto 2, Md., 333 N. Michigan Ave., Chicago 1, Ill., 6087 Sunset Blvd., Los Angeles 28, California.

$6.95

DRAINS cellars, cisterns, wash tubs; **IRRIGATES - CIRCULATES - SPRAYS**

1,001 USES—HOUSE, GARDEN, FARM
Original All-Purpose Pump has 3,000 GPH capacity. 450 GPH 80' high; or 1800 GPH from 25' well. Use any 1/6 to ¾ HP motor. Stainless steel shaft. Oil-less bearing. 1" inlet; ¾" outlet. Motor coupling included.

DOES NOT CLOG OR RUST
Postpaid if cash with order. (West of Miss. add 50c.) MONEY BACK GUARANTEE. Larger Centrifugal Pumps and Gear Pumps in all sizes.

LABAWCO PUMPS, Belle Mead 3A, N. J.

ELECTRIC WELDER AC or DC 110 Volt

The "Little Marvel" all-metal welder. 5-year written guarantee. Welds ⅛" metal or money back. Repairs tanks, tools, fenders, machine parts, etc. Complete with everything—rods, unit, eye shield, directions. $6.45 plus 50c postage. Flame torch accessory for soldering, cutting, brazing $3.95 complete with carbons, brass rods, flux. $2.00 deposit on C.O.D. ¼ inch Transformer Welder $19.95 F.O.B.

$6.45 Complete

ESSAY MFG. CO., Dept. 47, Quincy 69, Mass.

MENDS MOST ANYTHING

"HOLDS LIKE IRON"

Used by fine furniture makers. Ideal for home and office. In ¾ oz. or 2½ oz. sizes.

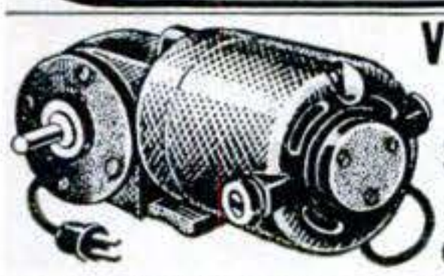
Copyrighted material

ONLY **$36.50** Less motor

Favorite of home owners and craftsmen for 20 years! SPEEDY SPRAYER gives your work that professional paint finish everyone admires. Sprays paint, enamel, varnish, lacquer, etc. . . . 4 to 7 times faster than hand brushing! Lightweight, portable, uses any ¼ H.P. motor. Improved diaphragm principle assures clean, oil-free air. You'll find dozens of time and money saving uses for SPEEDY SPRAYER, including spraying insecticides 2-4-D and DDT. Complete outfit, without motor, only $36.50

At leading hardware, lumber, and auto supply dealers.
FREE—*write for handy booklet "How to Spray."*

W. R. BROWN CORPORATION
2637 N. Normandy Ave. • Chicago 35, Ill.



Variable Speed, Gear Head MOTOR
Develops as much as 1/4 HP
Speed Range 6—600 RPM **$14.50** PRE-PAID
FULLY GUARANTEED *Reg. Price* $35.00

Such versatile motors are hard to find . . . applicable for countless Experimental and Laboratory uses. Ideal for building special equipment that save valuable man hours. BALL BEARING! The finest heavy duty Rheostat **INCLUDED** adjusts ANY speed from 6 to 600 RPM. Extra heavy-duty series type motor (operates AC or DC), 110 Volt, 25-60 cycle. 5/16" diam. shaft. Rugged cast iron construction! Operates conveyors, jeweler's lathes, timing devices . . . perfect for revolving window displays and sign rotation . . . 1,001 uses! Order from ad. We pay shipping.

FREE CATALOG of Compressors, Welders, Power Plants
ROBERTS ELECTRIC CO., Dept. S-289, 849 W. Grand, Chicago 22, Ill.

FILE SAWS THE RIGHT WAY

SUPER SAW FILER NO. 6
IT'S NEW! and so simple you can file a saw blindfolded!
Automatically controls
DEPTH—ANGLE—PITCH

Perfect bevel and angle maintained, and fool-proof depth control for all Rip, Crosscut, and Handsaws.. Precision made and calibrated for instant setting at desired angle. Can be used in any vice or clamp. Complete with file, only **$6.50** ppd.

SAVE TIME AND $$$

JOINT & SHARPEN CIRCULAR SAWS
Sensational new Super Filer No. 11 joints and sharpens both **hand** and **circular** saws 6" to 10" with all teeth the correct height, depth, pitch and bevel. Easy to use—when file hits hardened steel roller, teeth are finished. Saw runs true and smooth with no side pull. Complete with special 8" file **$9.95 ppd.**

FREE FOLDER **"TRU-CIRCLE"** saw set automatically sets teeth at 10° or more **$2.95.**
AT DEALERS OR POSTPAID

Guaranteed • **SEND FOR FREE CATALOG** •
A.D. McBURNEY, 5908 Hollywood Blvd., Hollywood 28, Cal., Dept. S-55

Just Off the Press!

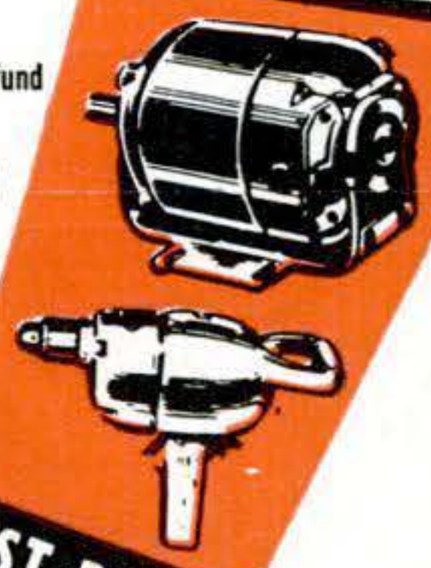
Mammoth 1955 Wholesale Tool Catalog

The opportunity now awaits you to own and operate your own business on a part time or full time basis in the lucrative field of HARDWARE, HAND TOOLS, FANS, POWER TOOLS, MOTORS, PAINTS, etc., or BUY TOOLS FOR YOUR INDUSTRIAL OR INSTITUTIONAL USES.

You Can Buy Nationally Advertised Tools, Etc.,
NO INVESTMENT REQUIRED, BUY AS YOU NEED IT. A MILLION DOLLAR INVENTORY AT YOUR FINGER TIPS.

Discount **UP TO 50%**

$1.00 refund on first purchase or refund if you are not 100% satisfied.



Every one needs tools. Meet the demands of the growing "Do-it Yourself" markets. Sell direct from the jumbo buying guide—your cost is known only to you.

JUST FILL OUT COUPON

ENCLOSE $1.00 FOR DEALERS CARD & 1955 MAMMOTH TOOL CATALOG.

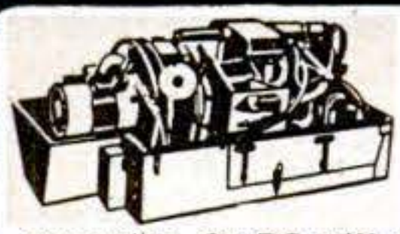
SILVO HARDWARE COMPANY
Dept. PS-5, 108 Market St., Philadelphia 6, Pa.

I am enclosing $1.00. Rush me your dealer's card and big Catalog Today. If I am not completely satisfied with your plan, I understand that I can return the Dealer's Card and Catalog for refund, and if I decide to order, my $1.00 will be deductible from my first order.

NAME.....
ADDRESS.....
CITY.....ZONE.....STATE.....

Copyrighted material

WAR SURPLUS AND OTHER BARGAINS SAVE UP TO 90%



AUXILIARY POWER UNIT

Ideal for your shop, camp, cottage, farm, trailer, home, boat or mines. Makes a terrific welder for any sized job. 2 cylinder, horizontally-opposed air-cooled engine. Complete with AC-DC generator. On DC will supply 200 Amps at 24-28 Volts; on AC will supply 10.5 Amps—1200 Watt at 800 Cycle. The DC Generator rating at normal RPM, 5 KW. Operates on cheap gasoline. Economical. No batteries required. Dual Scintilla magnetos. Generator can be removed and engine coupled to other units for other purposes. Mfd. by Lawrance. Comes complete in fire-proof enclosure which cuts motor noise to a minimum. Shpg. wt. cased, 398 lbs., net wt., 139 lbs. Like NEW. Complete, guaranteed perfect. Govt. Cost $4770. Special Now—Model D1. 10 HP with AC-DC Generator described above—**$125.50**; also with 300 Amp Generator—**$157.50**. Model C2, with 160 Amp Generator, intermittent 220 Amps. 14.5 HP—**$137.50**.

SENSATIONAL GENERATOR BUY!!

Famous Navy NEA-5 Generator. Combination AC-DC Type. AC voltage—115 V. DC voltage —24 V. 200 Amp. 2 complete generators in 1 . . . 2 separate fields and 2 separate armatures on same shaft yet no larger than regular aircraft generator. Ideal for home, farm and shop lighting plants by hooking wires to AC side. DC side can be used for welding and operating war surplus low voltage hobby motors and equipment. Weight 54 lbs. NEW. Approx. GOVT. COST $350. NEW **$27.50** used perfect **$18.00**

SPECIAL CARBON PILE TYPE VOLTAGE REGULATOR to go with above generator. Incl. mounting base and completely enclosed in steel-mesh box. Helps maintain constant current and prevents pulsation. Ideal for installation with above generator for lighting plant. Wt. 5 lbs. Complete NEW. Approx. GOVT. COST $90. Now only **$7.95**

BUY 'EM BOTH SAVE $5.45! Generator & Regulator together $30

SENSITIVE ALTIMETER in 10 Ft. Increments. Famous Pioneer! 0 to 35,000 ft. (inches of Mercury). Tested and inspected in our own instrument lab. Guaranteed perfect. Approx. Govt. Cost $150. NOW ONLY **$13.95** PREPAID!

MICROMETER DEPTH GAUGE

With 3 rods to measure all depths from 0 to 3 inches by thousandths. Hardened tool steel lead screw has full 1 inch run. Base is 2½" long, hardened ground and hand lapped. Accuracy guaranteed. Mfd. by Millers Falls Co. GOV'T COST approx. $30. NEW—**$10.95** ppd. USA. In velvet case.

MICROMETERS Chrome plated, precision engineered, carefully tooled to give long life. All new 0-1" cap. **$2.25** ea., 1-2" cap. **$3.50**.

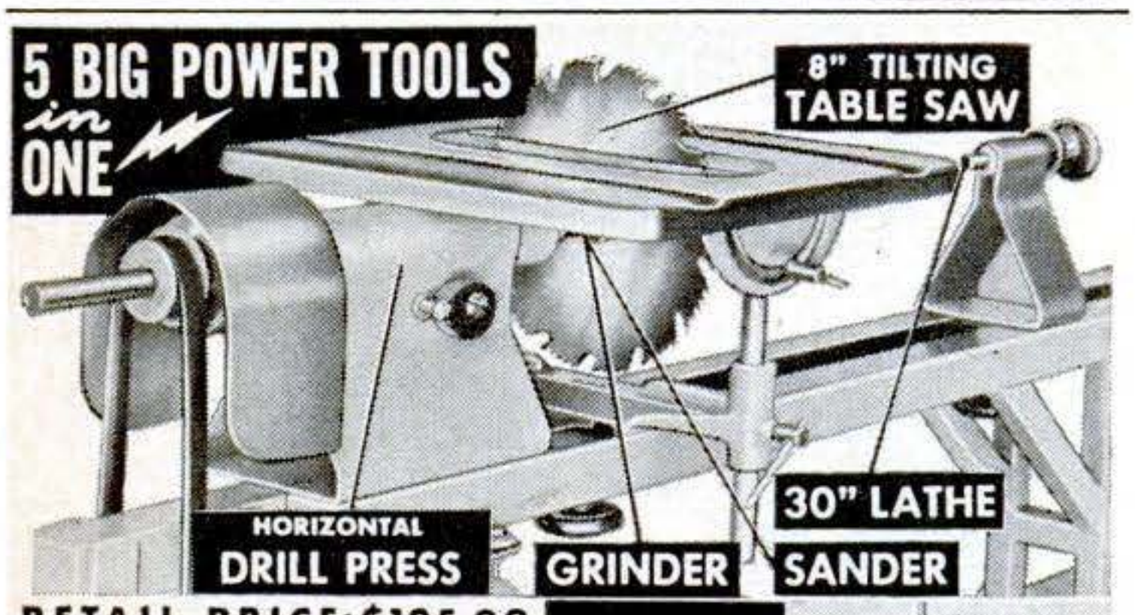
PRECISION GROUND SQUARES

Production engineer's Squares. Accuracy guaranteed. Mfd. by Wright & Moore, Sheffield, Eng. Square blades hardened & tempered. Individually packed in wood box. Brand NEW. Fraction of original cost. 2"—**$2.25**, 3"—**$2.50**, 4"—**$2.75**, 5"—**$3**, 6"—$3.25, 9"—**$6.50**, 12"—**$8.25**.

NEW 1955 CATALOG Biggest ever . . . new low prices . . . Send 25c for your copy today. Prices F.O.B. Culver City unless otherwise stated. Check, money order or cash. 25% deposit for C.O.D.

AIRBORNE SALES CO., INC. DEPT. PS 555
8501 Stellar Drive, Culver City, Calif.

5 BIG POWER TOOLS in ONE

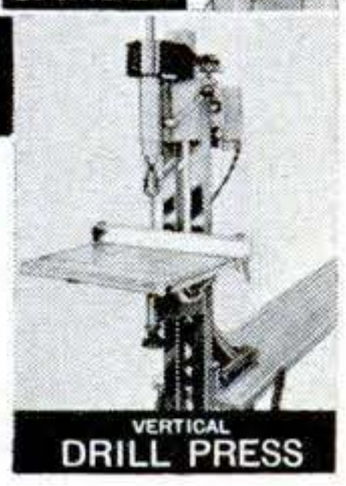


RETAIL PRICE $125.00

FACTORY TO YOU $79.95

SUPERSHOP is a PRECISION-BUILT WORKSHOP. 100% ball bearing. All running parts precision ground. Big capacity. Extra rugged. Amazing value. Write for FREE catalog.

BUY ON EASY PAYMENTS

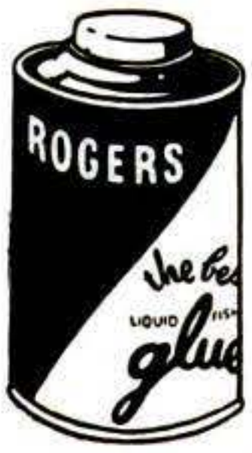


POWER TOOLS, INC. 271 YATES AVENUE, BELOIT, WISCONSIN

REPAIR THAT CHAIR YOURSELF
SAVES TIME & SAVES MONEY

Don't send good chairs, tables, household articles to the attic or cellar when they need repairing. Instead, get a bottle of Rogers Glue. It's easy to use . . . mends firmly and securely — because only the finest materials are used in making Rogers Glue. Take advantage, too, of this special offer. Send 15c for a full-sized jar of Rogers Glue plus a set of Project Plans. These plans give many illustrations with easy-to-follow directions for making furniture, household articles and toys. They include instructions, too, for setting up a simple workshop. But whether building or repairing, use the glue that gives you the best results — Rogers Glue.

Ask for Rogers Glue at Your Local Hardware Store.



"A Ton of Strength in Every Drop"

ROGERS
the best LIQUID FISH GLUE
GLOUCESTER, MASS.

x-acto
KNIVES • TOOLS
HANDICRAFT KITS

NO. 82
KNIFE SET
$4.20

X-ACTO, INC.
48-47 Van Dam St.
Long Island City,
N. Y.

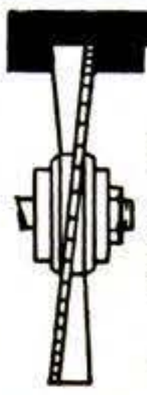
Send 25c for 28-page Catalog

MAGNETS

ASSORTED MAGNETS with big list of handy uses.....5 for $1
POWERFUL POCKET MAGNET ideal for testing metals..... $1
RETRIEVING MAGNET pulls tools, etc., from tank or lake..... $4
HOT PAD MAGNETS to insert in your own hot pads.....8 for $1
BULLETIN BOARD MAGNETS to "pin-up" memos, etc.....8 for $1
SLENDER MAGNETS remove chips from drill holes.....2 for $1

Write for free booklet including heavy retrieving magnets. 100% satisfaction guaranteed ..... POSTPAID

PARK MAGNETS, 655, 1557 Greenbay Rd., Highland Park, Ill.



NEW WAY TO CUT PERFECT GROOVES WITH CIRCLE SAW!

Just dial any of 40 cuts. Parallel, clean, no sanding! Leave on saw for regular cuts. For ½, ⅝, ¾ and 1" arbors. At dealer's or order direct!

Send for free booklet

Only $4.95 per set

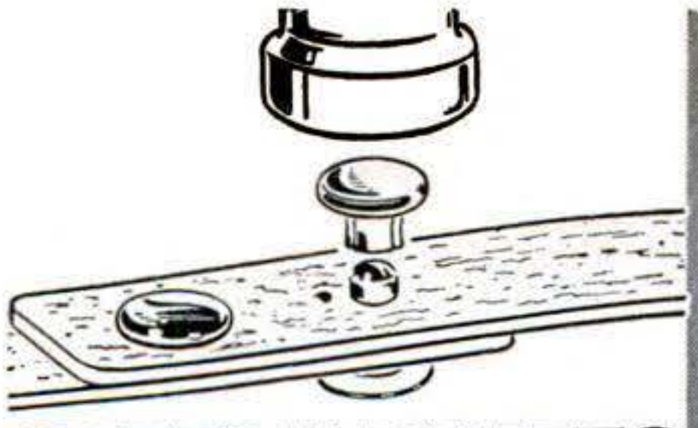
WARREN DADO WASHERS CO.
Dept. 45 P.O. Box 98, Detroit 2, Mich.

IN 3 MONTHS—7000 TOOLMAKERS IN DETROIT ALONE CHOSE *POCKET SOC-KIT*

This pocket socket-head wrench kit gives you 21 different sizes—the right wrench when you want it. Fits neatly in shirt, apron or pants pocket. Will not crack or break. Patented grip locks each wrench securely in place—gentle pull releases it for instant use. Covers 11 sizes in socket head bolts: No. 5 to 9/16. Also 10 set screw sizes: No. 10 to 3/4. Molded from neoprene rubber. Not affected by oil or solvents. Send 60c for your Pocket Soc-Kit today. Wrenches 90c extra.

AGON ENGINEERING COMPANY
14249 Darcy Street Detroit 23, Michigan
(DEALER INQUIRIES INVITED)

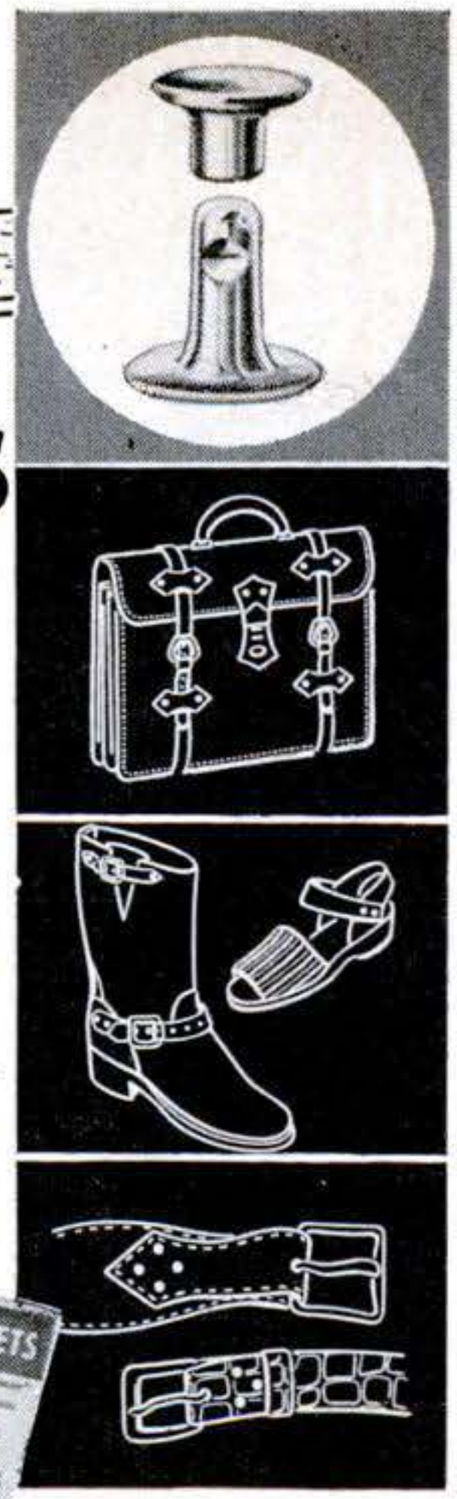
Copyrighted material

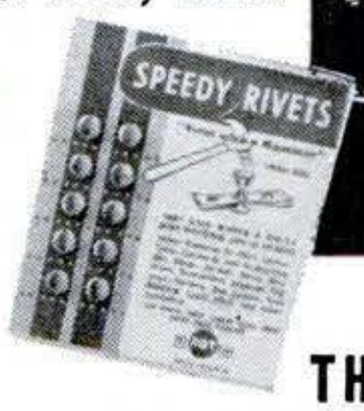


SPEEDY RIVETS

simply swat with a hammer

Fasten leather, cloth, paper, plastics. Quick, secure, permanent repairs . . . ideal for craftwork, too. Simply make a hole in each part to be fastened, push rivet together through holes, place on firm surface and swat with a hammer. Gilt, nickel, black, brown finishes. Large (6 per card) or small (10 per card) sizes.





AT HARDWARE COUNTERS EVERYWHERE

15¢ per card

THE DOT LINE

3229 S. Ashland Ave., Chicago 8, Ill.

Treasure Chest of Ideas for Home Workshoppers!

NEW POPULAR SCIENCE 512-PAGE MAMMOTH HOME WORKSHOP MANUAL

ONLY $2.98!

Wonderful treasury of "how-to" projects for the man who likes to do things! Giant 512-page volume shows you how to save money—get more pleasure from your home workshop. Make handsome furniture, home accessories, gifts, toys. Build utility cabinets, racks, shelves, doors, etc. Work with wood, plastic, metals. You'll find hundreds of illustrations, scores of inside tips from Popular Science's trained experts!

Make This Giant Manual a Permanent Addition to Your How-To Library!

There's enough material in this one book for years of practical, enjoyable, inexpensive projects. And you can have this perfect workshop companion for only $2.98! So make sure of getting your copy. Today—RIGHT NOW—send $2.98 (we pay postage) or ask us to send c.o.d.

Popular Science, Dept. 555, 353 4th Ave., N. Y., N. Y.

TIME SAVING TIPS

ALL YOU NEED IS A TUBE OF

DU PONT DUCO CEMENT

REG. U.S. PAT. OFF.

First aid for broken glasses! Keep transparent "Duco" Cement handy for emergencies!

Fill in chipped windshield with tough, waterproof "Duco" Cement—you *see* through it!

Repair chairs — "Duco" Cement anchors loose rungs, makes chairs sturdy in a very few minutes.

Rejoin broken rule in a jiffy with "Duco" Cement —made to measure for strength!

Mend leaky watering cans without solder—easy-to-use "Duco" Cement makes a strong, watertight seal.

Fasten patches on small rips in canoe canvas with "Duco" Cement—it's rugged *and* waterproof!

Don't just sew a torn mitt—cement it too, with strong, flexible "Duco" Cement.

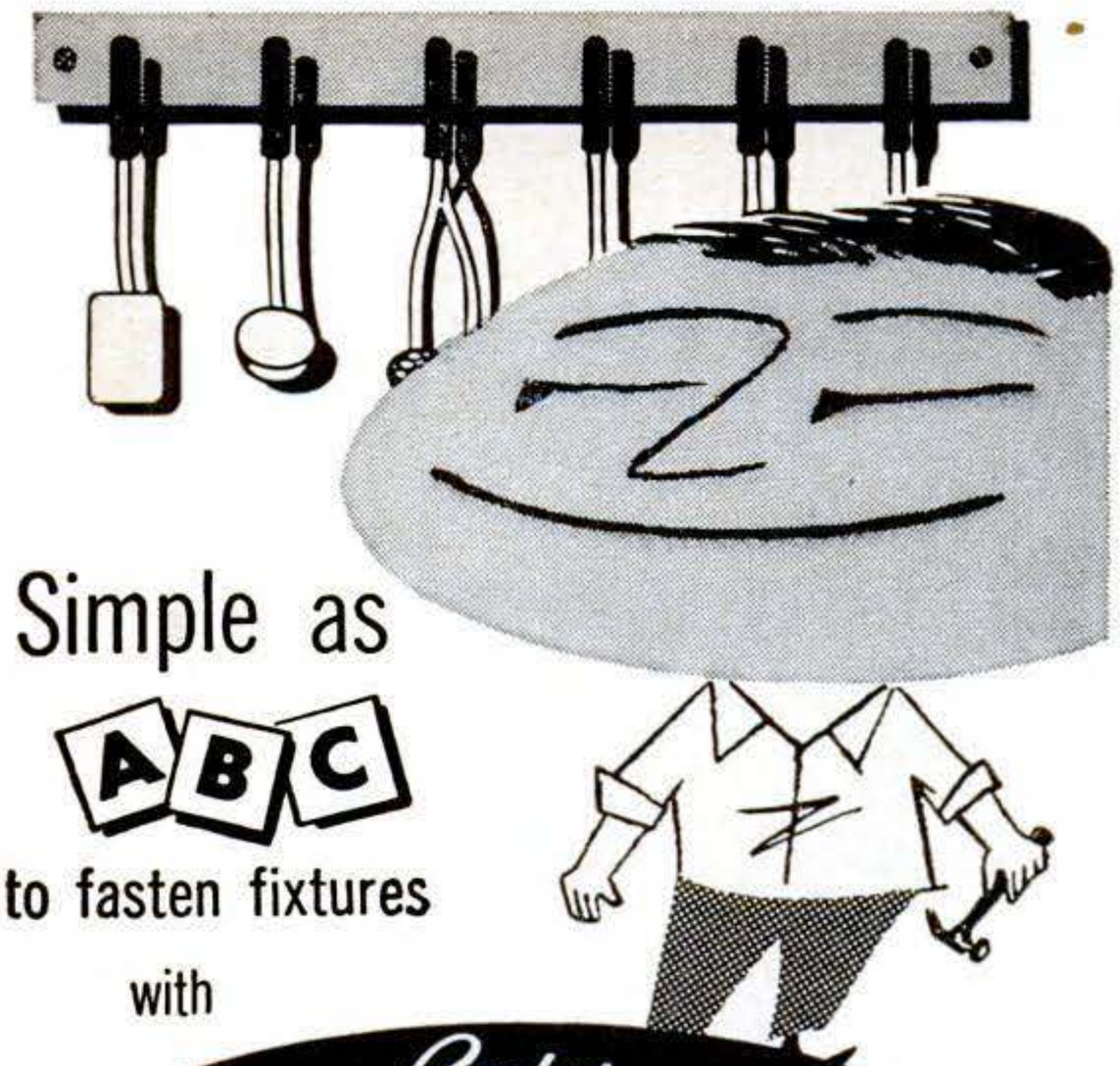
Stop a runner with a dab of "Duco" Cement—flexible . . . so clear it's almost invisible.

A household favorite for 25 years

DU PONT REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

Copyrighted material

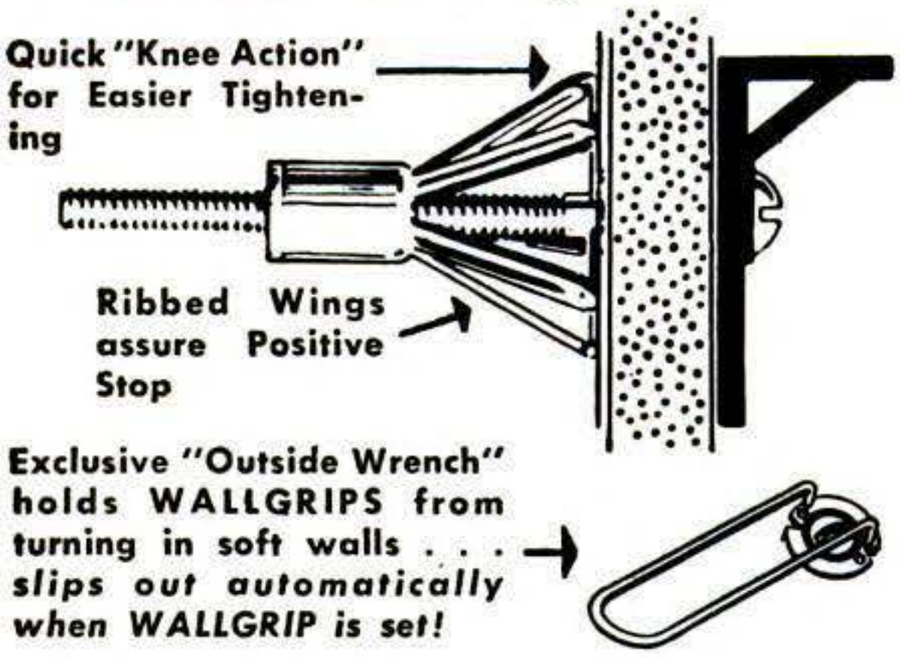


Simple as ABC to fasten fixtures with

Rocket WALLGRIPS
HOLLOW WALL SCREW ANCHORS

Securely fasten mirrors, pictures, cabinets, curtain and shelf brackets to plaster, wallboard, gypsum, cinder block, marble, hollow tile . . . with perfect ease and safety. Quick **"Knee-Action"** permits tightening with practically no effort. Ribbed wings assure a **"Positive Stop"** — tell you when WALLGRIP is set . . . guarantee a vise-like fastening **everytime.** Yet fixtures can be quickly removed and replaced when redecorating — without disturbing the WALLGRIP.

FREE PAMPHLET! "Don't be a WALLFOULER." Write Dept. PS-5



WHEREVER HARDWARE IS SOLD

ROCKET DEVICES CORPORATION

142 Liberty Street • New York 6, N. Y.

SAVE GAS! I'LL SEND YOU THIS FREE!

10 DAY FREE TRIAL! SEND NO MONEY!
PAY POSTMAN NOTHING!

Users Report 4, 5, 6 Extra Miles per Gallon with New Miracle Gane Air-flow Needle. ($1.50 Value)

Up to **25% MORE MILEAGE, FASTER PICK-UP, QUICKER STARTING** reported. Phenomenal money-saving results coming from **½ MILLION USERS.** Carburetor Engineering Co. reports **SAVING OF 72¢ PER DAY. YELLOW CAB CO., FLEET OWNERS, POLICE, EMERGENCY** vehicle users. Outstanding performance "approved". **FITS ALL CARS AND TRUCKS. INSTALL YOURSELF IN 2 MINUTES** with simple twist-of-the-wrist. (Replaces present idle adjustment screw in your carburetor.) **AMAZINGLY EASY TO DO!**

also FREE! Receive valuable revealing booklet if you WRITE TODAY without delay.

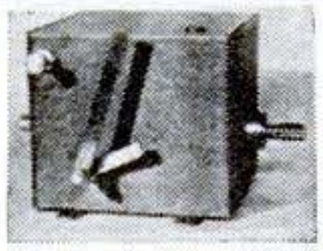
HOW TO OBTAIN OVER 47 MILES PER GALLON

● ***TRY IT FREE! JUST SEND NAME AND ADDRESS!*** ●

PAY NOTHING! Test this revolutionary new automotive discovery in your car **AT OUR EXPENSE!** Check mileage. (Some users report no improvement—so **TRY BEFORE YOU BUY.**) If amazed at increased mileage —**SEND ONLY $1.50 EA.** Otherwise, just return the "little stinkers" and you owe us nothing. Fair enough? Specify make of car, # cyl., and year (8 cyl. cars use 2.) Rush, Free Trial **SUPPLY LIMITED.**

NEWHOUSE AUTOMOTIVE INDUSTRIES, Dept. N-324, 5805 E. Beverly Blvd., Los Angeles 22, Calif.

VARIABLE SPEED HYDRAULIC POWER TRANSMISSION



It has Infinite Speeds 0 to 550 Reverse Automatic Overload Protection: Adjustable Torque up to 180 inch pounds, 5/8" Input and Output Shafts. It will handle 1/4 to 1½ H.P. Motor. Case measures 7½" long 7" high 6½" wide. VALUE OVER $300. Shipping Wt. 25#. On C.O.D. Orders we require a 10% Deposit.

only **$54.50** Fob. Chicago

DIRZUIS MACHINE SHOP "N", 1423-25 52nd Ave., Cicero 50, Ill.

Wholesale! TOOLS! GUNS! CAMERAS!

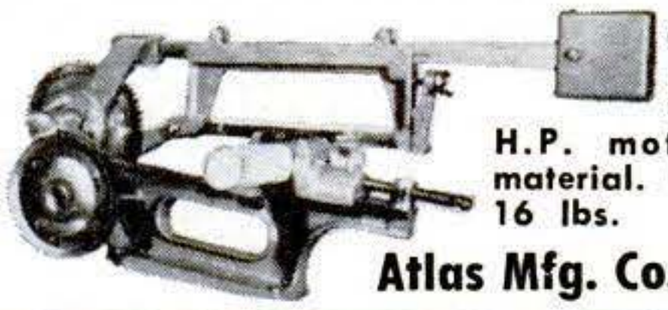
BUY TOOLS PHOTO EQUIPMENT, SPORTING GOODS, JEWELRY AND THOUSANDS OTHER NATIONALLY ADVERTISED PRODUCTS AT BIG DISCOUNTS SAVE ON OWN PURCHASES BIG PROFITS SELLING TO OTHERS.
POSTCARD BRINGS FREE COPY "THE WHOLESALE PLAN"

Get up to 40% off

AMERICAN BUYERS SERVICE

631 LINDEN AVE., DEPT. 8, BUFFALO 16, NEW YORK

POWER STEEL SAW $24.95



Complete with 2" pulley, 28" V belt, 2 saw blades less ¼ H.P. motor. Cuts App. 2" material. Cast iron Const. Wt. 16 lbs.

Atlas Mfg. Co., Kaukauna, Wis.

BUILD YOUR OWN ROOM AIR CONDITIONER

Save more than $100. with the KOOL-KIT. Contains all parts necessary, including motors and complete instructions for easy assembly. Price $149.95 shipped freight collect. Money back guarantee. Literature on request.

KOOL-KIT INC. **P.O. Box 4055** **Alexandria, Va.**

POWERFUL! LOW COST!

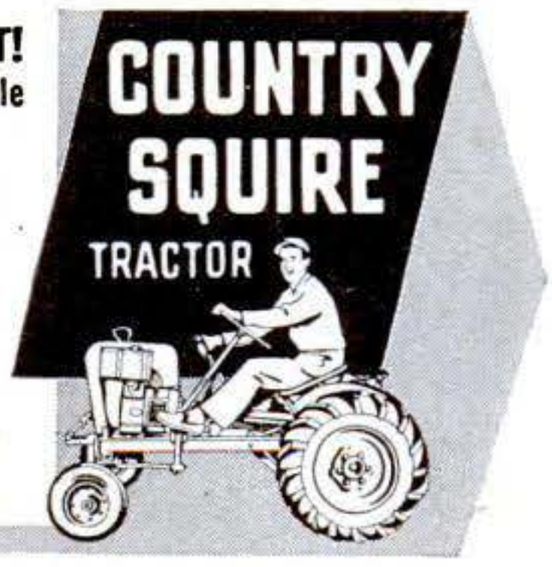
Light • Rugged • Maneuverable

America's best tractor value. More useable power -- pulling, pushing, driving. 770 lbs. Pulls 12" plow. Gear Drive 8.4 Hp. B&S engine. Roller Bearings. B&W 4 speed Trans. Clutch. Diff. Full line implements. 100% satisfaction guaranteed.

Write for FREE CATALOG

COUNTRY SQUIRE TRACTOR CO.

P. O. Box 107 A-5
Muskego Wisconsin

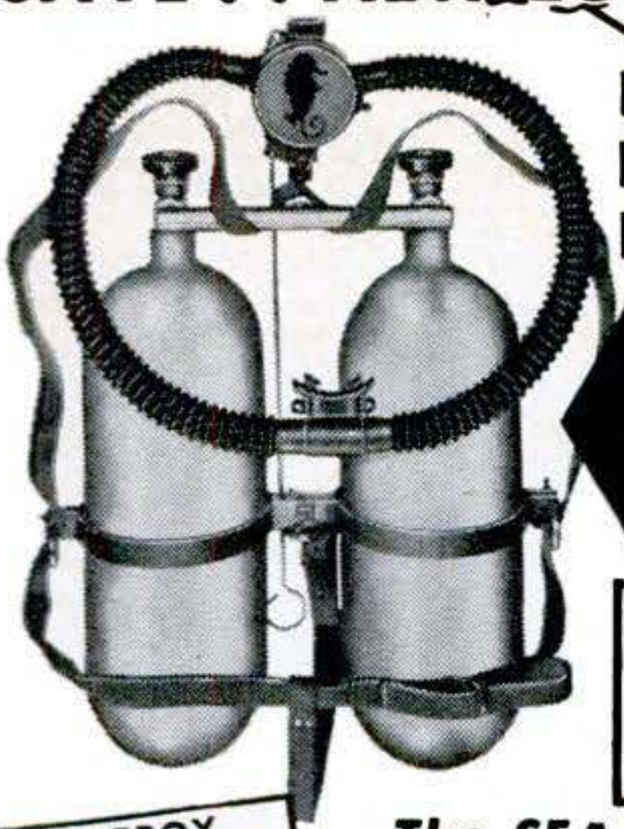


Copyrighted material

SAVE . . NEW LOW PRICES!

COMPLETELY AUTOMATIC DIVING LUNGS

with exclusive SAFETY features
Complete . . Filled . . Ready to Use



FOR DEEP DIVING

99.50 Complete

SINGLE TANK Outfit Complete Approx. 1-Hour **$75**

APPROX. UNDERWATER TIME 2 HOURS

Re-Breather Type-Mark 11 for Shallow Diving 69.50

The SEA HORSE features

- New Improved Demand Regulator
- Improved Non-Return Mouthpiece
- Emergency and Reserve Air Supply

The 2-stage demand REGULATOR automatically releases air as needed; effortless breathing in any position, includes both emergency *and* warning device. New I.C.C. approved TANKS with current dating . . . 84 cu. ft. cap. at 2000 psi; standard fittings; can be refilled anywhere; check valves in MOUTHPIECE keep water out of hose. Complete comfort with full adjustable HARNESS. Rugged, rustproof construction throughout. Parts and service available. Weight 55 lbs.

Send Check or Money Order. If C.O.D., 25% with order. 10% deposit holds your purchase.

Write for Literature TODAY . . Club Inquiries Invited

DIVE-CRAFT INDUSTRIES DIVISION OF HONUS WAGNER CO.
813 Liberty Ave. Dept. PS-5 Pittsburgh 22, Pa.

Exclusive Features— Double Breathing Hose with Non-Return Mouthpiece

The finest Oxygen Re-Breathing Set ever offered for shallow water diving (to 35 feet). Completely rustproof. Brand new U.S. Navy Surplus. Complete with all accessories and instructions; 2500 lb. pressure gauge, wrench; nylon web adjustable harness; quick release buckle; new refillable brass tube canister. Baralyme Chemical type for extra economy; automatic demand mechanism. Two Hours Underwater Time. Weight 25 lbs.

Same Re-Breather Outfit with Single Hose . . $59.50

New "LITTLE WONDER" Non-Return Mouthpiece 8 PP

All-rubber. Built-in clapper valves keep water out of hose; prevent air mixing. A $14.95 value . . our price only $8.45.

WE GUARANTEE COMPLETE SATISFACTION

New, Simplified ARC WELDING PAYS BIG!

AC Weld-AC Power Combination Generators

Low Investment . . . Steady Profits!

200 or 300 Amp. Combination. Hook this AC power-AC welder generator up to a good used auto engine for big extra profits. Supplies 110/220 volts for operating lights, tools, etc., or proper values for welding.

AC Transformer Type. Here's a real production and repair welder for you who want improved AC welding performance Operates on single phase 220 volt power lines. **Hobart Bros. Co., Box P-55, Troy, Ohio.**

"Build-Your-Own" and Save! Choice of DC or AC or . . . AC weld-AC power combinat'n

Check and MAIL!

. . . with your name and address for complete data

- ☐ AC-AC Comb.
- ☐ AC Trans. Type
- ☐ Hobart Trade School, G. I. approved

SPECIAL OFFER—Only 10¢
50-Page "Tools and Rules" Book

"The Tools and Rules for Precision Measuring" tells how to make accuracy a habit, shows the methods skilled mechanics use. 100 pictures plus reference tables. Send only one dime. Address Dept. PS.

Only 10¢

THE L. S. STARRETT CO. • ATHOL, MASS., U. S. A.

DIAL YOUR JOB WITH NEW

SHOP SMITH ®

Exclusive new Speed Dial automatically selects the right speed for any job. Infinitely variable settings from 700 to 5200 rpm. SHOPSMITH* comes complete—$289.50 Write for free catalog. **MAGNA ENGINEERING CORP., Dept. 283-A, 12819 Coit Rd., Cleveland 8, Ohio, or Menlo Park, Calif.** *T.M. Reg.

GIGANTIC SAVE-TO-70% MAIL SALE WAR SURPLUS EXCESS INVENTORY BANKRUPT STOCK

WEED SPRAY OUTFIT

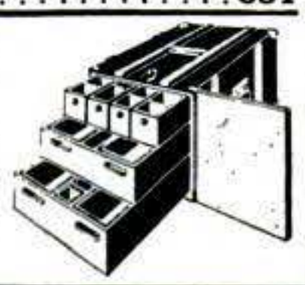
- Leading make. Latest design 5-row (17'). P.T.O. tractor-drive bronze pump. T-jet nozzles, finest controls, gauges, hose. Complete. Only 50 units. List $175. Shipped prepaid in U.S.A. **$97.65**

ARMY POWER PLANTS

Amazing prepaid bargains, write for free catalog.

- 2000-w, 115-v, 60-c . . . **$289**
- 3000-4000-w, 115-v, 60-c **349**
- 7500-9400-w, 115/230-v, 60-c **681**

TOOLS-PARTS CABINET



- Genuine Army wood cabinet for tools, parts. 28"x21"x20" — 3-section body—6 easy-pull drawers—22 separate compartments. BRAND NEW! 91 lbs. Govt. cost. $78.25. SALE, only **$8.00** FOB our Ky. warehouse.

HYDRAULIC UNITS and WATER PUMPS

- **Hyd. Control Valve,** 1 or 2-way . . . **$18.00**
- **Hyd. Cylinders,** low as **3.89**
- **Hyd. Pumps,** Fittings, gauges, save to 70%!
- **Navy Water Pump.** 140 gal. per min. **24.61**
- Many other water pump bargains. Write.

AIR COMPRESSORS—TANKS

- Finest Piston Air Comp. **$18.91**
- Air Corp. Pressure Tank **6.79**
- Automatic Pressure Switch **4.95**
- Paint guns, hose, fittings, complete kits. Build your own kits, marvelous savings!

AIR POWERED TREE TRIMMER

- Simply press button. Powerful precision air cylinder does the rest. Cuts limbs to ⅞" or better. Operates from any small home air compressor. Works on 40-70 lbs. air. 10'. Reg. list, $69.50. SALE, **$19.51** Ppd.

SPECIAL OF THE MONTH!

Portable Power Plant

- Ideal for sportsmen, boats, camps, emergency lights, battery chrgg, &c.
- Genuine $400 Homelite ball bearing 4 h.p. engine driving 2000-w 30-v DC generator. Free 6 light bulbs. Wt. 99 lbs. Govt. cost, over $400. SALE, **$69.50** Prepaid.

SPECIALS FROM PREVIOUS ADS

- **Attic Fan Kit,** 30", use any ¼ h.p. motor **$15.95**
- **Surveyors Tripod Level** **42.00**
- **AC-DC Power Supply, 110-v** **19.61**
- **Gear Head AC Motor,** leading make **9.61**
- **Giant Flood Lamp** **49.50**
- **Hydraulic Cylinder,** 1½"x4" **3.89**
- **Irrigation Pump** **29.50**

WE PAY all freight, express, parcel post—except where shown "F.O.B."
FREE CATALOG. 100's items in our surplus center warehouse. Mail card today.

FREE CATALOG **BURDEN SALES COMPANY**
827 "O" St. Lincoln, Nebr.

Copyrighted material

REFINISHING Your Boat, Furniture, Cottage?

DO IT WITH A DREMEL

STRAIGHT-LINE-ACTION SANDER

MODEL "53" New heavy-duty sander with powerful ROTARY MOTOR. Weighs only 5¼ lbs., has 24 sq. in. pad. Can be used for rough and finish sanding. Complete with 2 detachable pads, 6 abrasive sheets..... **$34.85**

Write for **FREE** catalog

Finishing experts agree—and tests prove—only straight-line-action sanding is free of orbital swirls and gouges. Be sure of perfect finishes! Insist on DREMEL with-the-grain sanders. Choose from three unbeatable models.

MODEL "2000" Perfect for small shop and home use. High speed motor produces 14,400 strokes per minute; wt. 5 lbs.; 21 sq. in. sanding surface. Price including steel carrying case, polishing pad, 6 abrasives..... **$24.50**

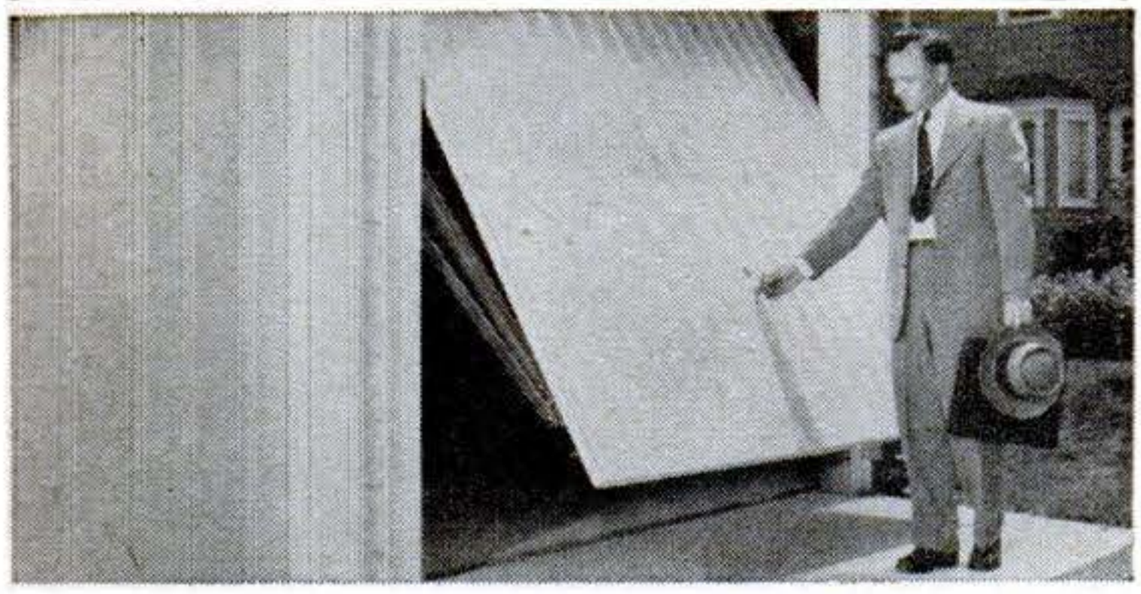
MODEL "A" Wt. 2½ lbs.; 12 sq. in. sanding surface, 14,400 strokes per min. Complete with polish pad, massage pad, 6 abrasives.

$14.85

SEE YOUR DEALER.
If he cannot supply, order direct on 5-day trial, money-back guarantee. Remit in full for postpaid shipment. Or send $2, pay postman balance plus C.O.D. fee.

ELECTRIC DREMEL POWER TOOLS

DREMEL MFG. CO., Dept. 125-E, Racine, Wisconsin



HOW TO GET A NEW GARAGE DOOR AT LESS THAN HALF PRICE!

Yes, you can have a swing-up garage door like the one shown here — complete with Stanley Swing-Up Hardware for *less than half* what you'd normally pay!

How? *Build it yourself* from Easi-Bild's* Pattern No. 86. It's easy! No special tools — no special skill! Just follow the clear, "can't-go-wrong" directions of the pattern. Tells you everything — including what materials to buy, where and when to use them. Stanley Garage Door Set is simplicity itself to install. You'll be amazed how quickly you can do the job — and mighty proud of your results.

Ask your dealer for Simplified Directions for Installing Stanley Garage Hardware and Easi-Bild Pattern. Or use coupon below. *Trade Mark Reg. U.S. Pat. Off. — Easi-Bild Pattern Co.

EASI-BILD PATTERN CO., Dept. S-5, Pleasantville, N.Y.
Enclosed is 50¢ in coin, money order, check for Garage Door Pattern No. 86

Please send Simplified Directions for installing
( ) Single ( ) Double Garage Door Hardware.

NAME .....

ADDRESS .....

CITY ..... ZONE ..... STATE .....

BUILD YOUR OWN POWER TOOLS — WITH GIL-BILT PARTS KITS

TILT/ARBOR SAW

- 27x28 in. table. 13½ in. capacity in front of blade.
- 10 in. blade cuts 3¼ in. deep, tilts full 45 degrees
- Floor model 34" high, table always stays level
- New Departure ball bearing arbor, ¾" precision shaft turned down for ⅝" bore blades, alum. housing, shipped ready to run
- Jackscrew and 4½ in. dia. handwheel lowers and raises blade
- Cast aluminum miter gauge and self-aligning rip fence guide

GIL-BILT Metal Parts Kit includes Plans, ball bearing arbor, miter gauge and bar, rip fence guide, dado insert, lock knobs, jackscrew mechanism and handwheel, and all other metal parts (less blade) $22.95
Same Kit with 10" Combination Blade.. $25.90
Same Kit with 8" Combination Blade.. $24.90

GIL-BILT 12-INCH BAND SAW

Ball bearing drive, rigid cast aluminum wheels, rubber tires. Handles stock up to 6 inches thick. Cuts to center of 24" circle. 18x18 inch tilt table. Capacity and performance of band saws selling for $80 and up.
Plans and all metal parts in kit with ¼" blade.. $23.95
Return Kits in 10 days for refund if not satisfied.
For shipments up to 600 miles, add 5%; over 600 add 10%. Amount in excess of actual postage will be refunded. Order Kit now, or order Plans at $1.00 each and Kit later less cost of plans.

PLANS only $1.00 EACH POSTPAID

Write for *FREE* Catalog.

Also Available: Plans & Parts Kits for 18" Band Saw, Belt Sander, Spindle Shaper, 8" Tilt-Table Saw

GILLIOM POWER TOOLS Dept. 70-E, Lambert Field, St. Louis 21, Missouri

YOU MAKE $5 CASH AN HOUR

sharpening circular saws, planer and jointer knives...in 15 square feet of your home or garage you can earn up to $5 an hour spare time. No experience needed...beginners turn out expert work. Only $15 down brings you this money-maker. Hundreds of jobs in your neighborhood. The cash you take in is 90% clear profit. Write today for FREE book, "Lifetime Security with Your Own Business."

SEND FOR FREE BOOK

BELSAW MACHINERY CO 4408 Field Bldg., Kansas City 11, Mo.

URANIUM AND METALS

Easily located with the new M-Scope Detector. Superior Performance. Prices $35.00 up. Monthly payment plan. Booklets "How to be a Successful Uranium Prospector"—"For Fun and Profit" free upon request.

FISHER RESEARCH LABORATORY, INC.
PALO ALTO CALIF.

TEST TV—RADIO TUBES

Yourself with UNATEST 51. Own your own tube tester for less than the cost of one service call. Buy your tubes at discount! SAVES MONEY the first time it's used. Mahogany Case—110 volt AC Tests all popular size tubes. Simple to operate —Fully guaranteed. ORDER TODAY! ONLY $5.00—Post Paid. Send Cash, Check or M.O.

$5.00

BAUMBACH ENG. CO. Dept. P-55, 10147 Halbrent, San Fernando, Calif.

NEW '55 CATALOG NEW CHRYSLER

BOAT KITS

BOAT PLANS

BUY DIRECT-SAVE UP TO 2/3 ! FACTORY-TO-YOU! No Dealers

You SAVE the PROFIT

Save on the finest quality boat kits. Lowest prices in history. Mahogany decks, brass screws, easy to build. 18 models 8-16' All types!

SEND 10¢ FOR 1955 BOAT KIT CATALOG!
Includes Fiberglas-Accessories-Trailers, etc.

OVER 50 PLANS with FULL-SIZE PATTERNS

Send 10¢ for NEW PLAN CATALOG. Build your boat from modern, easy-to-follow plans with patterns. Saves time and money! All types included: Prams to Cruisers from 6 to 25'

CHRYSLER-CRAFT (DEPT.30) TONAWANDA, N.Y.

Copyrighted material

SAVE ON PALLEY SPECIAL VALUES

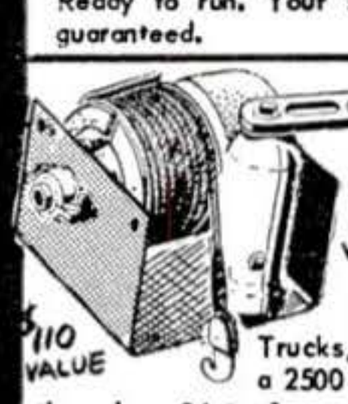
CENTRIFUGAL PUMP AND MOTOR

9.95

20.00 VALUE

DELIVERS up to 700 G.P.H.

For draining cellars, fish ponds, sumps, water circulators, etc. Powered by the famous G.E. 110 volt, 60 cycle motor. Has 1" standard pipe inlet, 3/4 inch I.D. hose outlet. A Gov't Surplus Bargain. Completely Reconditioned. Motor is rewound and checked for serviceability. Ready to run. Your satisfaction fully guaranteed.



HOIST

28.75 WITHOUT MOUNT

$110 VALUE

Ideal for Garages, Machine Shops, Trucks, Boats, etc. Has a 2500 lb. lift capacity through a 24 to 1 gear ratio. A bronze worm gear drive. 18 ft. of high tensile, steel cable – 3/16" diameter. NEW!

WINCH HOIST – Same as above with a free-spool, pull-out clutch. **29.75**

HOIST MOUNTING FRAME Specially designed for above winches. Allows easy universal mounting. Price of Frame Only **4.50**

ARMY PORTABLE WINCH HOIST

NEW

LIFTS 1500 POUNDS Made for U.S. Navy Bureau of Ordnance as a Bomb Hoist. Has a 21 to 1 gear ratio. 40" tubular arm extension with a 3" pulley on the end. Drum has 12 ft. of 3/16", high tensile strength steel cable. The operating handle has a ratchet brake. Ideal for 'swing about', truck or platform loading. A $125.00 Surplus Value. **22.50**

PESCO HYDRAULIC PUMP

ONLY **14.95**

A gear type pump. Will deliver 2 gal. per min. at 1500 RPM with 1500 PSI. Delivers 6 gal. per min. at 4300 RPM with 1500 PSI. Has .375 cu. in. displacement per rev. 3/4" standard pipe ports. 5/8" male spline drive shaft. 4"-pad mount.

AIR ASSOC. TE870MI HYDRAULIC TEST STAND

COST GOV'T APPROX. $6000

Electric motor driven type. Has 2500 PSI Hydreco Pump which delivers up to 10GPM. Powered by 15 HP, 3 phase motor which operates on 220/440 V, 60 cycle current. Unit has selector valves, pressure gauges, flow meter, reservoir, heat exchanger and filter pressure regulator. Mounted on steel frame. Has work bench, flourescent lights and hand operated, high pressure pump for high pressure testing. Size: 8 ft. long x 7 ft. high x 4 ft. **$1495**

HYDRAULIC TEST STAND – Same as above with a Reeves, variable speed reducer to control pump output. **$1895**

NOTE: Send for Catalog of our entire stock of Hydraulic Cylinders, Valves, Pumps, Motors, Tubing, Fittings, etc. Save NOW!

ARMY RIFLESCOPE AND SPECIAL MOUNT

A top quality Rifle Scope, built to rigid Gov't specifications – plus our own specially designed Mount. The Rifle Scope contains the finest, precision achromatic optics. Five double element lenses – fully corrected for spherical abberation and color. Has full 3 power magnification. Dot reticle. The newly developed Palley Scope Mount may be used with any type rifle. Has adjustments for windage and elevation. Will allow you to remove scope from mount for carrying or storage, and in addition you can remount the scope without disturbing your pre-set windage & elevation settings. Made of hardened alloy steel.

Price for Scope alone ONLY **9.95**

MOUNT ALONE (without scope) **15.00**

Scope and Mount. BOTH **24.50**

180° OFFSET DRIVE

NEW

For use where tremendous power at low take-off RPM is desired. 6 gears rotate on self-lubricating, hi-speed roller bearings. 85 to 1 gear ratio. Shafts are 1¼" & 3/8" dia. All NEW! **12.95** NEW

IN STOCK AGAIN VICKERS HYD. TRANSMISSION

Self-contained, constant torque at all speeds with variable volume, reversible piston pump which supplies piston hydraulic motor. Has 2 H.P. Automatic pressure dash pot for smooth control. Power output RPM – 0 to 1/3 input RPM in both directions. Input RPM 1800 continuous, 4000 intermittent. Ideal for Lathes, Duplicator setup on Mills, Conveyors, Small Cars, Drives, etc. NOW **44.50**

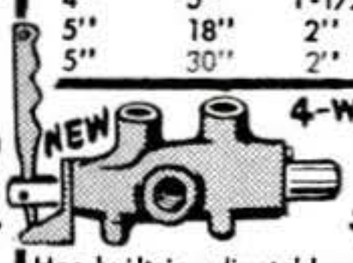
4" SPLINE SHAFTS for input and power take-off on above. Pair $2.50

INPUT & TAKE-OFF PLATE ASSEM. To adapt Trans. to pulley drive. Has 1/2" keyway shaft. High speed bearings. Set $20.00

SAVE 50% ON NEW PALLEY HYDRAULIC CYLINDERS

Announcing our own line of HYDRAULIC CYLINDERS. Designed to meet the most rigid requirements. ALL STEEL with 'O' rings. 1500 and 3000 PSI. Full stock of replacement parts available. We also Custom Build in any size to your specs. Write for full details of our entire line or see examples below . . . .

BORE	STROKE	SHAFT	PSI	PRICE
3"	4"	1-1/8"	1500	$32.50
4"	5"	1-1/8"	1500	$37.50
4"	5"	1-1/2"	3000	$52.50
5"	18"	2"	3000	$85.00
5"	30"	2"	3000	$130.00



NEW

4-WAY OPEN CENTER CONTROL VALVE $21.50

Has built-in adjustable relief valve, set at 1000 PSI. Spring loaded neutral position. For use with one double action cylinder as shown above. May be mounted in series. Has 3/4" pipe, inlet & outlet. 1/2" pipe thread cylinder ports. Shipping weight 10½ lbs.

SURPLUS BARGAIN

No. 29 HYDRAULIC CYLINDER – Will give 20,000 lbs. thrust using 1500 PSI line pressure as delivered from our hydraulic pumps. Gives up to 40,000 lbs. thrust with 3000 PSI. Has 4" bore; 18" stroke; 30-1/2" long. . . . . .

USED **29.95** NEW **43.95**

SAVE UP TO 50% BUY FROM IMPORTER

GENUINE SELECT PHILLIPINE MAHOGANY LUAN PLYWOOD

Ideal For Fine CABINET WORK, FURNITURE, Paneling DENS, OFFICES, HOTELS, etc.

Our prices are LESS THAN DOMESTIC PLYWOOD at WHOLESALE. This selected LUAN MAHOGANY meets the most rigid specifications. It is WEATHER and WATER RESISTANT. You'll be amazed at the beauty of this fine wood. Its rich golden elegance will thrill you. Rotary cut for beauty of grain. Both sides sanded and ready to use. Bonded with finest resin adhesive. Face side unjointed.

3 ft. x 6 ft. x 3 mm approx. 1/8." 18 sq. ft. A $5.00 VALUE **1.79** FULL SHEET Min. order 8 sheets

See for YOURSELF FREE SAMPLE on request!

All orders shipped by special truck for LOWEST rates. No order accepted for less than 100 lbs., ... ((4) ¼" sheets (8) ⅛" sheets)

4 ft. x 8 ft. x 1/4" 32 sq. ft. A $9.50 VALUE **4.49** FULL SHEET Min. order 4 sheets

3400 RPM ½ HP POWER SAW

compares to saws selling up to 49.50

19.98 Complete with 5⅞" Blade

NEW

CUTS THROUGH A *FINISHED* 2 x 4 LIKE A KNIFE THROUGH BUTTER RIPS-CROSSCUTS

A rugged, professional type, adjustable saw. Cut any angle, 0 to 45°. Has adjustable (0 to 6") rip fence. Safety-trigger switch on handle. Full ½ HP Universal AC-DC, 110-120 Volt, 60 cycle motor. Weighs only 6 lbs. A sensational Value – We sold over 700 Saws in Los Angeles in one week.

EXTRA SAW BLADES – Available in Rip, Crosscut or Combination. Please specify . . . . price each . . **2.95**

SPORTSMAN'S 12 Pc. IMPORTED COMBINATION KNIFE

Complete with Genuine Leather Holster!

NEW

OVERALL LGTH. 4⅝

Eliminates 12 Individual Items from your Pack or Tool Kit!

(A $12.95 VALUE) **4.95**

COMPLETE CAMP KIT

Here is the Perfect, Combination Knife-Tool for every Outdoor Sportsman, Hunter, Camper, Fisherman, Boy Scout, Ranger, Rancher, etc. Think of it! 11, Fine quality Steel Tools, precision made to fold easily into the heavy bone covered body. In one neat, compact unit you have (1) a regular knife, (2) a fork, (3) a spoon, (4) a draw-knife, (5) a bone-saw and fish-scaler, (6) scissors, (7) a can and bottle opener, (8) a cork-screw, (9) awl punch, (10) a screwdriver and (11) a metal file. All this PLUS a genuine leather, belt holster.

ORDER NOW While We Can Guarantee Delivery at this Special Low Price

BUILD YOUR OWN DIVING LUNG

150.00 VALUE

As seen in Popular Science. Save up to $100. Our fully illustrated instructions shpw how it's done. Included in are 2 Air Bottles (1 hour air supply), Pressure Regulator, Hose, Shoulder Harness, Safety Belt, Clamps, Mouth Piece, Valves, etc. FREE – with each order **45.95**

A pair of Navy Swim Shoes to protect feet from coral, rocks, etc. Give shoe size. . .

FREE CATALOG

Has latest info. on Diving Equip. Plus an illustrated and described article on "How to build your own Diving Lung". Order yours TODAY!

NEW MEDUSA DIVING MASK

Has two built-in, snorkle type breathing tubes. Fully covers both the mouth and the nose. Made of finest quality rubber with quality safety glass eye lens. Formerly $10.95 . . **8.95**

NEW CRESSI PINOCCHIO DIVING MASK

Specially designed to bring the lens close to eyes. The mask's Pinocchio nose allows you to grasp it between the fingers & blow out to relieve pressure on the ears. Special lens is 3/16" tempered safety glass. Be the first to own this fine Italian import. Guaranteed! **5.95**

AMAZING 320 PAGE CATALOG

FULLY ILLUSTRATED. Thousands of Bargains. Send 50¢ to cover the cost of Handling and Mailing. 50¢ credited to your first order. Send for yours TODAY!

ORDER FROM THIS AD – Pay by Money Order or Check. Purchase orders accepted from D&B firms. 50% deposit with C.O.D.s. Prices F.O.B. here.

PALLEY SUPPLY CO 2263 E. VERNON AVE., DEPT. PS-5 LOS ANGELES 58, CALIF.

Copyrighted material

[Continued from page 122]

long range, where high speed is not the main factor. Thus the turboprop may very well become tomorrow's workhorse of the air.

U.S. turboprop engines have all been designed for the military. They power (mostly experimentally or for service tests) many types. These include a version of the C-124 Douglas Globemaster, a 200-troop-carrying monster; the 40-troop Piasecki H-16 helicopter; an F-84 fighter, replacing jet power to see how it works; the two Navy VTO (Vertical Take-Off) planes. These are powerful engines, perhaps too powerful for economical use by commercial airlines.

Three engine manufacturers, however, believe that they now have turboprops, modified from military versions, that can be used to power commercial transports.

• Allison Division of General Motors recently announced that it was making a commercial version of its military T56 turboprop engine available to U.S. airlines and airframe manufacturers. They claim that this Model 501-D10, developing 3,750 horsepower, could raise the speed of a four-engine airliner to 450 miles an hour. That is about the speed of the British Comet I jet, and is faster than the P-38 Lightning fighter of World War II.

• Pratt and Whitney has a PT2 turboprop, a commercial development of its 5,700-horsepower T34 military engine. The PT2 is being considered for Lockheed's 1449, a Super Constellation modified as a turboprop airliner.

• Curtiss-Wright's T49 military turboprop puts out more than 10,000 horsepower. It is so powerful, and so efficient in using its power, that two of them, flying experimentally in a six-engine B-47 Stratojet bomber, replace four J47 jet engines. (A single J47 jet packs an equivalent of about 6,000 horsepower at 375 miles, and more than that at high speeds.)

That's a lot of power for an airliner to take on. You wouldn't want it, you couldn't use it, the airplane couldn't handle it. Roy T. Hurley, president of Curtiss-Wright, agrees, but he has a simple solution: Down-rate the T49 for commercial use; gear it down so that it could put out no more than two-thirds, or even less, of its maximum capability.

As commercial power packages, however, these U.S. turboprops, like several new British ones, are not yet in actual production. Even if orders came right now, it is doubtful that they could go into airline service for about three years. This means that Capital's and Trans-Canada's new Viscount turboprops will meet no competition in this country until 1958.

By that time, there may be a jet flying a U.S. airline. Boeing recently announced that orders placed this spring for a commercial version of its 707 jet transport could be delivered in 1958. END

NEXT MONTH... **How to Build a Plywood Swimming Pool**

NAIL standard-size sheets of waterproof plywood to a framework of two-by-fours, calk the joints like a boat and you've got a swimming pool. No need to break your back digging a hole, for the pool stands aboveground. For all the details on how to do the job, be sure to see the June issue of POPULAR SCIENCE MONTHLY. The cost? Just a little over a hundred dollars. Time required? Two weekends.

Copyrighted material

HIGH PRESSURE FOUNTAIN BRUSH WASHES CARS LIKE MAGIC WITH ROTARY POWER SPRAY

SAVE $3.00 FROM FACTORY-TO-YOU

$1.98 COMPLETE KIT

A SPARKLING CLEAN CAR YOURS . . . IN 7 TO 10 MINUTES
NO HARD LABOR! NO FUSS! NO MESS!

Reg. 4.98

NEW 3 WAY FOUNTAIN BRUSH WASHES CARS, PORCHES, FLOORS, SCREENS, WINDOWS—QUICK, EASY!

Now . . . Order your famous **AEROMAT FOUNTAIN BRUSH** direct from the factory and save $3.00. Thousands sold last year at much higher prices. The new, improved 1955 model is better than ever—gives you quicker, more thoro washing action. Simply attach it to your garden hose and wash your car sparkling clean in 7 to 10 minutes! Wonderful for household chores also! Washes screens, windows, venetian blinds, floors, walls, tile, awnings, porches, outdoor furniture. So thoro—so quick—so easy!

ROTARY HIGH PRESSURE ACTION WORKS FOR YOU!

The **AEROMAT** has a built-in suds chamber. Drop in a "Magic" Detergent Pellet supplied with your brush, turn on the water and glide it along your car! No hard scrubbing. No back straining. You take it easy while the high pressure **ROTARY SPRAY ACTION** loosens and removes all road film and dirt. It's easy . . . it's fast . . . it's fun!

3 SECTION TELESCOPE HANDLE LIKE 3 BRUSHES IN ONE!

NEW for **1955**—a 3 section fountain handle—makes the new model **AEROMAT** handier than ever. Each section is one foot long. Use 3 sections for washing cars, walls, windows. Use one or two sections for other work. Easy to store away or take along when you travel! **STAR FEATURE**: Bristles are made with the new miracle product—**DUROSTYRENE**—soft as silk, cannot scratch or mar paint—yet it lasts for years and years!

COMPLETE KIT—ONLY 1.98

Includes Brush, Handle, Suds Chamber, Magic Pellets and Carrying Case

You get everything you need, ready for **INSTANT** use—nothing else to buy. Try an **AEROMAT** kit now—without risk. Send only **1.98** m.o., check or cash for immediate delivery. Or order COD plus 44 cents postage. **RUSH COUPON AT ONCE!** Quantities limited. First come, first served. Get yours direct from the manufacturer and save over half! Your money back quick if not 100% satisfied!

SEE IT IN ACTION! TRY—BEFORE YOU BUY!

Use, try, test an **AEROMAT** any way you like for 5 days. See the **ROTARY SUDS ACTION** thru the **VISIBLE HEAD.** See how it dissolves road sludge and dirt with practically no work! Then, if you're not thrilled in every way, return to our factory for immediate refund of your 1.98—no questions asked! Rush coupon now for free trial—no obligation. It's not a sale until you've tried it and agree it's simply amazing.

USE FOR *ALL* HOUSE WASH JOBS!

FLOORS SCREENS WALLS WINDOWS

FREE TO YOU 10 CAR WASHES!

Yours free of extra cost—a generous trial supply of **AEROMAT "MAGIC" SUDS PELLETS**—enough for 10 car washes. Place in built-in chamber. As water flows through, pellets foam into suds. Road film dissolves and slides off. Leaves no streaks! Never mars finish. Free package contains enough pellets for 10 car washes. If you paid only $1 per wash you would save $10 Extra packages available: Regular Size for 12 washes: 59 cents. Large size washes 24 cars, costs only $1.

MOTO-MATIC COMPANY
352 Fourth Ave., Dept. 7-E-444, New York 10, N. Y.

RUSH! for COMPLETE KIT

. . . ON 5 DAY APPROVAL . . .

Copyright 1955, M-Matic Co.

MOTO-MATIC COMPANY,
352 Fourth Ave., Dept. 7-E-444, New York 10, N.Y.

RUSH.....Aeromat Washer Kits, Complete with Carrying Case, Brush, Head, Suds Chamber, 3 handles with all fittings, complete for **1.98** each—on **5 DAY TRIAL—MONEY BACK GUARANTEE.** I'm not buying—I'm trying. If I am not delighted, you will refund my **1.98** at once.

☐ 1.98 enclosed—RUSH all postage paid. ☐ Send COD plus 44c postage.

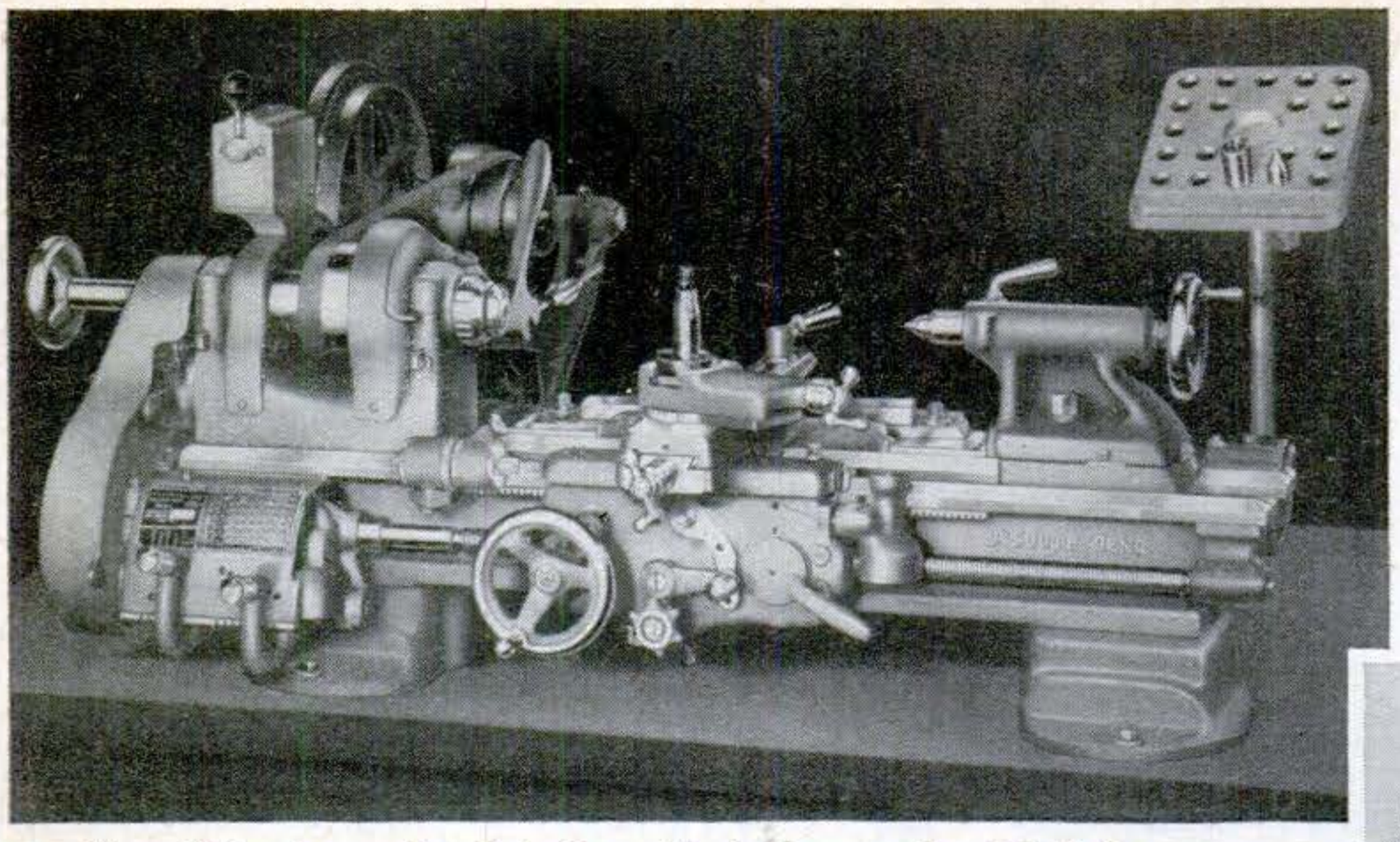
Name.....

Address..... Town..... State.....

☐ ALSO send.....Large Size package of magic pellets at $1. each—enough for 24 car washes.

☐ Send.....pkgs. reg. size at 59c each for 12 washes.

Copyrighted material



South Bend

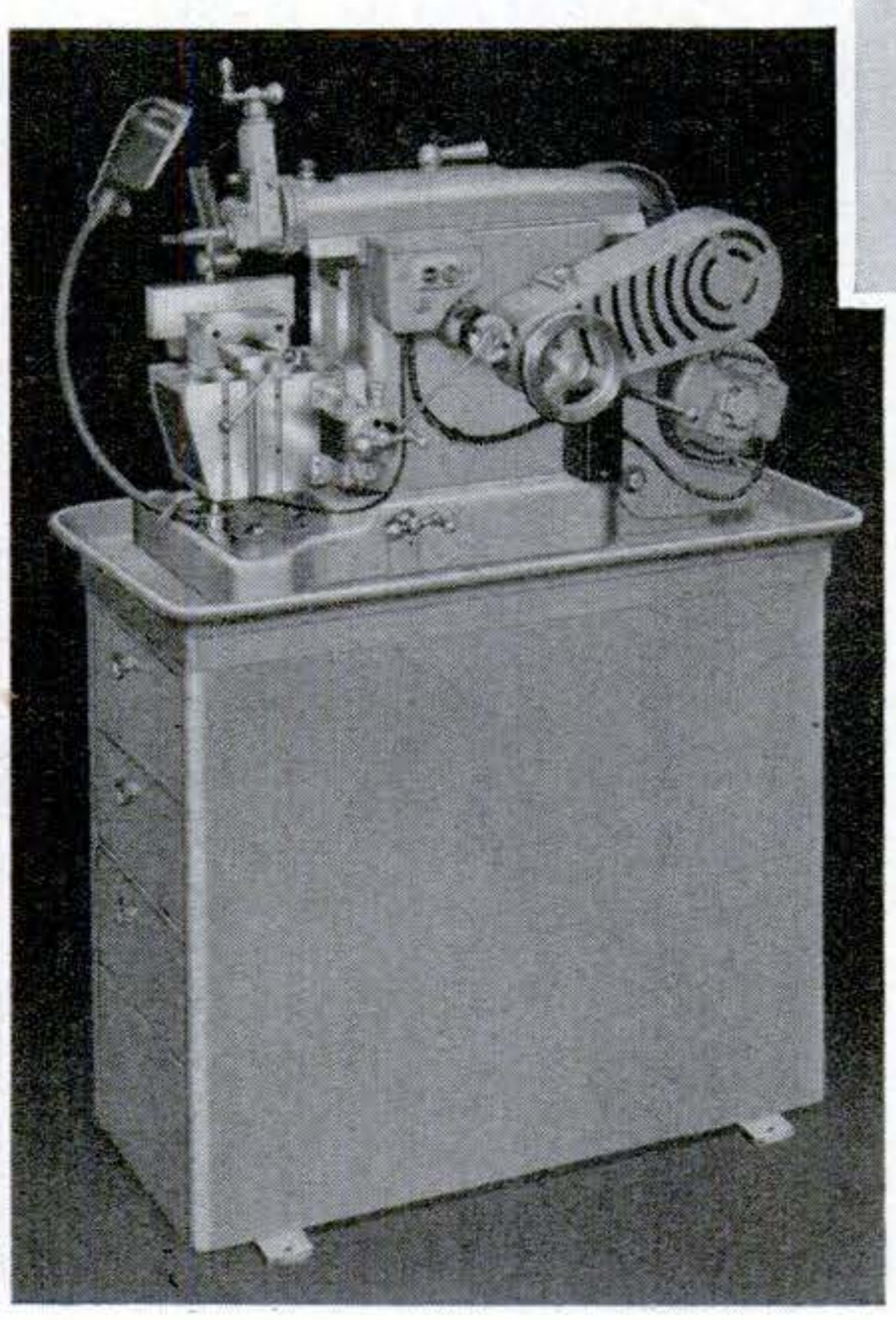
9" x 3' Toolroom Bench Lathe with toolroom attachments, less electrical equipment, f.o.b. factory, **$608**

Built Better

TO GIVE YOU A

Better Buy

8" Pedestal Grinder with wheels and lights but less motor, f.o.b. factory, **$245**



7" Bench Shaper with light, vise and pressure lubrication but less metal bench and motor, f.o.b. factory, **$551**

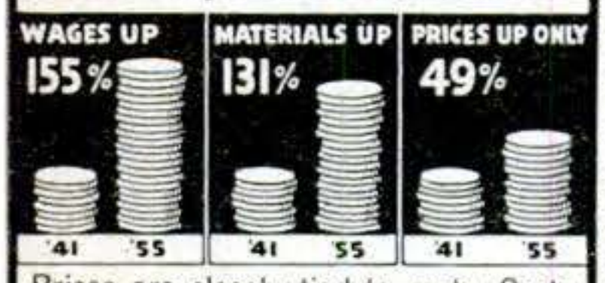
South Bend Machine Tools contribute to the skill and ability of the most expert technician because they are a match for the most exacting tolerances required. Versatile and easy to operate they enable you to do more and better work. Quality built throughout, they represent maximum value at minimum cost. Regardless of the kind of machine work you do, it will be to your advantage to learn more about South Bend. Mail coupon for complete information without obligation.

TIME PAYMENTS

only 3¼%

annual interest on original unpaid balance. Low down payment and monthly installments.

Compared with our costs
OUR PRICES ARE LOWER
than they were back in 1941



Prices are closely tied to costs. Costs are still rising. Buy now before increased costs necessitate higher prices.

SEND INFORMATION CHECKED:

☐ 9" and 10" BENCH LATHES ☐ 10" to 16-24" FLOOR LATHES ☐ DRILL PRESSES ☐ TOOL GRINDERS ☐ ½" & 1" Collet TURRET LATHES ☐ 7" BENCH SHAPERS

Name_____ Street_____

City_____ State_____

Building Better Tools Since 1906 • **SOUTH BEND LATHE** • South Bend 22, Indiana

Copyrighted material

CONDITIONAIRE VENTILATING FANS

Save big money installing your own exhaust fan. Efficient propellor type blade moves huge volume of air quietly and effortlessly. Heavy welded frame — pre-drilled for easy installation. Just cut opening and bolt in place. **Continuous duty** motors. Ideal for attics, restaurants, garages, barns, chicken houses, etc. Control manually or with thermostat.

Blade	Opening	CFM	Wt.	Item	
16"	18¼"	2925	19 lb.	365a	$27.95
18"	19¼"	3600	27 lb.	365b	$31.95
20"	21¼"	4100	30 lb.	365c	$39.95

HEATING & VENTILATING FAN

(Item 10) Easily installed in furnace pipes. Forces even heat to all rooms. Over range removes kitchen smoke and odors. Powerful, continuous duty motor, 110-120v. AC. Mount in wall or ceiling to ventilate any area. Quiet, super-efficient fan moves huge volume of air. (400 to 600 CFM).

8" Pipe, wt. 5 lb. $6.85
9" Pipe, wt. 6 lb. $7.85
10" Pipe, wt. 7 lb. $8.85
12" Pipe, wt. 8 lb. $9.85

HEAVY DUTY FAN. Semi-enclosed motor, suitable for spray booths, restaurant exhausts, poultry houses, etc. 10" Fan, wt. 8 lbs. (Item 10E) $11.95
12" Fan, wt. 10 lbs. (Item 10D) $12.95

EXTENSION CORD

Heavy duty and very flexible. Neoprene 14-2 cable. 20 year quality. Wt. 12 lbs. (Item 185) 100 ft. Complete with rubber plug and outlet. A terrific buy at only **$8.95**

NO. 12-2 POWER CABLE. Very flexible rubber covered, special outside shield for grounding power tools, etc. 50 ft. (Item 199) wt. 8 lbs. **$6.95.** 100 ft. (Item 200) **$12.95**

52 pc. SOCKET SET

Highest quality, guaranteed non-breakable sockets made by Husky. Beautifully matched chrome thin wall alloy absolutely the best. Contains a complete set of 28 sockets in ½" drive, ⅜" drive and ¼" drive, plus all necessary extensions, handles, speeders, reversible ratchets, etc.; all uncond. guaranteed against breakage. A beautiful set of tools that will handle any job; in a **big** doghouse steel box. Wt. 17 lbs. (Item 205) List price $62.90. Factory special .. **$27.95**

FLASH-WELD SOLDER GUN

High powered double transformer soldering gun that converts ordinary 115 v. current to instant heat for big soldering jobs! Installs or removes copper pipe fittings in two seconds! Applies solder lugs, heats tools for hardening, provides heat for continuous sheet metal soldering. Saves at least 50% labor time. Includes complete heating unit transformer, heavy cables and grip type soldering pliers. Wt. 38 lbs. (Item 777) Reg. $79.50, Close-out **$39.50**

Variable Speed Selector

(Item 68)

Heavy duty, made by **B. F. GOODRICH** for industrial use. Provides instant speed changes for any drive. For machine tools, dryers, printing, conveyors, production lines, hoists—any operation requiring variable speed. Employs reliable "trouble free" planetary system. No hydraulic power losses. Infinite range, smooth operation, easy installation. 3 sizes: ½-1 hp. 36 lbs.; 1-2 hp. wt. 55 lbs.; 2-3 hp. wt. 105 lbs.; Reg. list $228, $252 and $352. Our prices . . . **$79.50, $89.50** and **$114.50**

9 TON HYDRAULIC PRESS

A tremendously powerful hydraulic press, capable of exerting 18,000 lbs. pressure. Pays for itself many times over—straightening bent connecting rods, king pins, crankshafts, axles, link pins and bars — or pushing out frozen bearings and bushings. Developed pressure under precise control and visible at all times on accurate gauge. Complete with both large and small anvils and jigs to straighten **any** kind of curve or bend. (Item 464) Wt. 110 lb. Actual list price $365. Our special close-out price **$69.50**

get **BEDROCK** factory prices

from **MASTER MECHANIC**

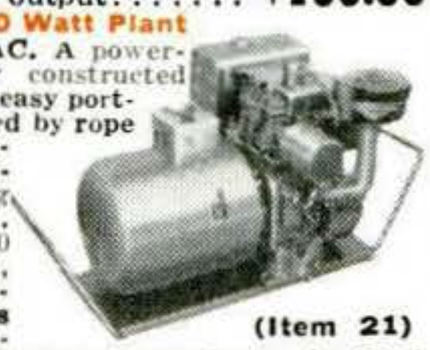
600-700 WATTS
PUSH BUTTON START

(Item 24)

115 v. 60 cyc. AC Powered by a rugged 2 HP easy starting Briggs engine. No wiring necessary; just plug in and operate. Plenty of current for any oil burner, freezer, brooder, emergency lights, etc. which require up to 700 watts. Ideal for television and radios. Complete with Voltmeter and built-in winding to charge 6 v. auto batteries. (Item 24.) Wt. 75 lbs. Easily fits in car trunk. Be prepared if storm knocks out power lines. Reg. $275 value **$143.50**

1000-1200 Watt Plant (Item 45) same as Item 24 but larger generator and engine with 50% greater output **$199.50**

MASTER-LITE 2500 Watt Plant



(Item 21)

110/120 v. 60 cyc. AC. A powerful plant, ruggedly constructed and yet designed for easy portability. Can be started by rope or built-in 12 v. electric push button starter. Built-in winding to charge battery. Powered by a big 5.10 HP Briggs engine, complete with all accessories. Includes control box, voltmeter, and handy plug-in power receptacle. An ideal plant for permanent or stand-by service. Wt. 225 lb. Reg. price $645.00 (Item 21) Factory Price **$329.50**

3500 Watt Plant Push Button Start (Item 23) 115 v. 60 cyc. AC. Similar to above, but larger and 33% more capacity. Wt. 270 lbs. Reg. $760. Factory Price **$379.50**

Dual Voltage 110/220 available for above plants for $30.00 additional.

We make every type and size of light plants— Write, giving us your requirements!

JET STEAM MASTER

Now, a super efficient portable steam generator that produces live steam at 100 lbs. pressure in 60 seconds from a cold start! Produces large volume of high pressure steam on 2 pints of fuel oil. Instantly cleans sticky grease, dirt, rust, old paint, etc. off implements and road machinery. Pays for itself in a few weeks. Sterilizes soil. Sterilizes as it cleans—milk equipment, etc. Fully automatic—oil fired with new, built-in lifetime bronze water circulating pump. Draws water from faucet or bucket. Simple and safe —anyone can use it; built-in safety valve. Complete with 12 ft. of hi-pressure steam hose and new triple efficiency steam gun that automatically mixes in soap solution if desired. Wt. 250 lbs. Item 463. Special factory price **$329.50**

HI-FLO Centrifugal PUMP

Completely self-priming! No foot **valve** required. Tremendous capacity—100 gal. per **min.** ! . . Special impeller **enables** pump to handle muddy **or** sandy water. Simple to operate—simply start engine and watch the water **go.** Powered by a rugged, easy-starting 2 HP Briggs engine. Prelubricated sealed bearings for years of heavy low-cost service. **Big 1½" Model.** Item 502. Wt. 70 lbs. Factory price **$134.50**

2" Model (150 gal. per min.) **with** 2½ HP engine. Item 502a. 90 lbs. Fact. Spec. **$154.50**

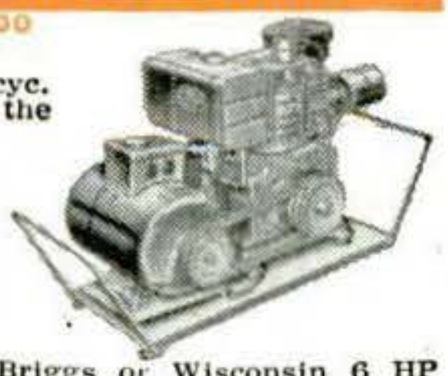
BIG JOE Portable Pump

A powerful pump that handles up to 15,000 gal. per hour. Easy to operate. Self-priming (after initial prime), no foot valve needed—resulting in 25% more capacity. Exclusive impeller design provides maximum rate of water per horsepower, yet handles water containing a large percentage of stone, gravel and mud. 2 in. suction and discharge. Powered by an **easy starting 6 hp. Wisconsin engine** and mounted on big rubber tired wheels. Wt. 280 lbs. (Item 280). Special Factory price **$299.50**

Same pump mounted on steel skids. Wt. 250 lbs. (Item 503). Factory price **$275.00**

PORTABLE LIGHT PLANTS

GIANT 2000-2500 WATT PLANT



110-120 v. 60 cyc. AC. absolutely the best made — exclusive dynamically balanced armature; heavy windings develop up to 5000 watt overload for motor starting. Skid mounted — portable. Powered by an easy starting Briggs or Wisconsin 6 HP engine—complete with all accessories; engine easily disconnected for other uses. Big outlet box, voltmeter, no wiring necessary. Ample current for all purposes. Factory warranty. (Item 31) Wt. 210 lb. Reg. price $585. Special at **$299.50**

Same plant with electric self starter (Item 31a) **$359.50**

Generator only and control box **$169.50**

DUAL VOLTAGE 110-220 available on any of above models for $28.00 additional.

JET FLOW BLOWER

Tremendous air movement (1800 CFM) and quiet operation make this double inlet 10" turbine blower unbeatable **for** heating, cooling, drying and **air** conditioning. Ideal for attic **or** barn ventilation, converting gravity heating to forced air; spray booth **exhausts,** etc. Operates with **any** ¼, ⅓ or ½ HP motor. Oversized, **long life** bearings. Includes variable **speed motor pulley** and belt. Dimensions 19" hi x 18" x 16½". Outlet opening 13" x 11⅜". Wt. 45 lbs. Item 245. Reg. $54.50. Factory Special **$27.50**

HEAVY DUTY ¼ HP motor for above **$16.95**

12" TURBINE BLOWER Similar to above, but larger with 2400 CFM capacity. Wt. 65 lbs. (Item 245a) Reg. $70.00. Factory Spec. **$34.50**

SELF-PROPELLED MASTER GARDENER

It's a lawn mower
It's a power sickle
It's a cultivator
It's a rotary tiller
It's a bulldozer
It's a snow blower

(Item 691)

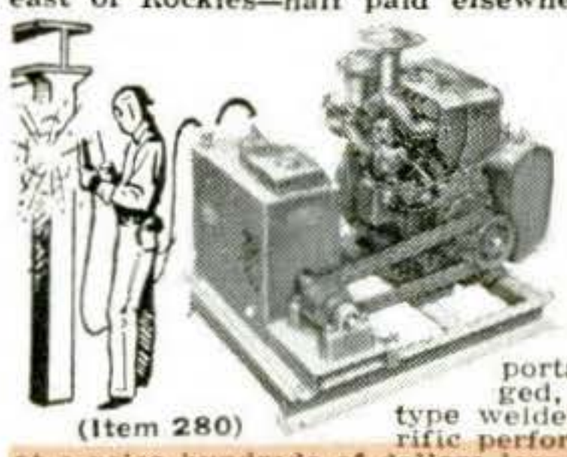
Tractor shown with Rotary Mower Attachment

New! with **power reverse!** Improved Master Gardener with new extra power and a full gear transmission—providing forward, neutral and POWER REVERSE! Works for you the year 'round. Does terrific job of cutting grass or weeds, or prepares mellowed deep seed beds without labor. So well balanced that any woman can easily handle it. Has two built-in clutches controlling motion and implement drive. New gear tread tires assure nonslip drive. Performs better—does more than tractors costing twice as much. Converts in minutes to Tiller, Sickle, Power Mower, Snow Blower, etc. Basic self-propelled tractor with famous 2½ hp. Clinton engine complete with rewind starter. Wt. 110 lbs. Special **$129.50**

Cultivator ..... **$18.75** Rotary Tiller **$49.50**
Furrowing Plow **$9.75** Disc Harrow **15.75**
Snow Blow .... **$39.50** Dump wheel barrow **49.50**
Rotary Lawn Mower **39.50**
Sickle Bar Mower **49.50**
Lawn Mower Hitch **4.75**

Easy payment plan available. Freight paid east of Rockies—half paid elsewhere.

MASTER DC ARC WELDERS



(Item 280)

Now! a portable, rugged, industrial type welder with terrific performance, yet at a price hundreds of dollars less than you'd expect. Senior model made for years of trouble-free, continuous service. High capacity DC welding unit enables you to tackle any job with confidence—easily welds anything up to 2" plate using from 1/16" to ¼" rods. Built-in stabilizer and cooling system makes arc easy to strike and hold. Dual control rheostat provides low heat soldering, brazing and welding from 30 to 300 amps. Complete with instructions, guarantee and **triple** V-belt or flat pulley. You can pay more, but you can't buy a better welder.

WELDER ONLY — DUAL CONTROL MODEL. Same as above, but drive with your tractor, jeep or gas engine of 14 HP or more. (Item 38a.) Wt. 110 lbs. $450 value **$119.50**

WELDER ONLY—STANDARD MODEL. Same as above but with single rheostat for heavy metal welding only. (Item 38.) Wt. 110 lbs. $400 value. Special .. **$99.75**

COMPLETE POWER MASTER (Illustrated above) powered by a 14.6 hp., air cooled Wisconsin engine. Wt. 480 lbs. (Item 280) Compares with welder costing $1200. Factory Special **$449.50**

WELDING KIT Two 10 ft. leads, welding helmet, electrode holder, ground clamp. Sold only with welder at ... **$10.50**

Send check or M.O. Prices f.o.b. Factory. 10 day Money back guarantee. SEND 10c for ... BIG 1955 Catalog

MASTER MECHANIC MFG. CO., DEPT. 49K Burlington, Wis.

Copyrighted material

For more pure pleasure... **have a Camel!**

"For me—they've got what it takes!"

No other cigarette is so rich-tasting yet so mild as CAMEL!

● THIS you'll notice about Camel smokers: they get more pure pleasure from smoking! Year after year, Camels lead all other brands. No other cigarette is so rich-tasting, yet so mild! Make your own 30-day Camel Mildness Test. Find out for yourself how wonderfully Camels agree with you!

R. J. Reynolds Tob. Co.
Winston-Salem, N. C.

Copyrighted material